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TRANSACTIONS

OF THE

MASSACHUSETTS HORTICULTURAL SOCIETY

FOR THE YEAR 1910

PART I

PUBLISHED BY THE SOCIETY
BOSTON
NINETEEN HUNDRED AND TEN

TRANSACTIONS

OF THE

Massachusetts Horticultural Society

FOR THE YEAR 1910

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BOSTON
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Massachusetts Horticultural Society.

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Massachusetts Horticultural Society

1910

The Transactions of the Society are issued annually in two parts under the direction of the Committee on Lectures and Publications.

Communications relating to the objects of the Society, its publications, exhibitions, and membership, may be addressed to William P. Rich, Secretary, Horticultural Hall, No. 300 Massachusetts Avenue, Boston, Massachusetts.

William J. Stewart, *Chairman*
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THE INAUGURAL MEETING, JANUARY 1, 1910.

TRANSACTIONS

OF THE

Massachusetts Horticultural Society.

1910, PART I.

INAUGURAL MEETING.

The Inaugural Meeting of the Massachusetts Horticultural Society for the year 1910 was held at Horticultural Hall, Boston, on Saturday, January 1, at twelve o'clock, noon.

President Stephen M. Weld presided and opened the meeting with the delivery of the following inaugural address:

Inaugural Address of President Weld.

To the Members of the Massachusetts Horticultural Society:

For the fourth time I appear before you to give an account of the doings of your Society for the past year, and to fill, to the best of my ability, the position you have honored me with as your President for the fourth time.

I am glad to be able to state to you that this last year we have turned the corner and shown quite a profit in receipts over expenditures. It inaugurates, I hope, a new departure, as since entering our new building in 1901 this is the first time our receipts have been more than our expenditures. The change and getting used to our new quarters caused many expenses and diverted many visitors

who otherwise, in our old quarters, would have kept in touch with us. Now that we are comfortably settled in our new quarters everything seems to be going in the right direction.

This increase in receipts is largely owing to the fine exhibitions which the Society made at the Spring Show in March in the Japanese Garden, and at the Chrysanthemum Show in November; the net receipts from entrance fees to these exhibitions having been the largest in the Society's experience.

All the exhibitions of the year have been of a high order and have shown an increase in the interest the members have taken in the Society's welfare, which it is hoped and believed will be maintained and even increased in the following season. The Japanese Garden at the Spring Show, designed and constructed by the Messrs. Farquhar, marks an epoch in horticultural exhibitions never before attained in this country.

The annual meeting at this time occurring so early in the year has made it impossible to give an exact estimate of the receipts and disbursements for the past year. It is estimated, however, that the Society's income has been about $23,000, and the expenditures about $23,000. It should be borne in mind that this statement includes the amounts paid for prizes and gratuities for the years 1908 and 1909, owing to a change made the present year in the plan of payment of these items. Hereafter the amounts appropriated annually for prizes and gratuities will be paid in the year in which they are made, and charged to the account of that year, and not to the succeeding year as has been the custom previously. Thus the actual result of the year's work is a surplus of about $5600, if the above estimates prove correct, as the prizes in 1908 amounted to $5623.

The sum received from Mount Auburn is about $600 more than last year. The rental of the hall has fallen off some five or six hundred dollars from last year. This falling off in the rental of the hall is something your Trustees are giving attention to. Several of the causes are largely beyond our control, but we hope to meet the wishes of the hiring public so that this revenue will increase.

Now that we have made this step forward it is earnestly hoped that we shall continue in the same line, and that the need of careful management and economy of administration will still be kept in mind.

There has been a notable increase the present year in the amount received from membership fees, about $500 in excess of the preceding year. Thirty-five new life members and one annual member, and one corresponding member have been added to our list.

We have lost by death seventeen members and two corresponding members, among whom are several who have been identified with us for many years. Appropriate record of all these deaths will be made in the forthcoming number of the Transactions of the Society.

I cannot commend too highly the work of the various Committees appointed to carry on the work of the Society, especially the Committees on Prizes and Exhibitions, on Plants and Flowers, on Fruits, and on Vegetables. The Chairmen of these various committees have performed their work with great faithfulness and have been ably assisted by the members. I hope this coming season will be one of great prosperity. The Orchid Show in the Spring promises to be the event in the history of the Society. All the members of the Society must take hold and help this show along, if for no other reason to back up and support the committee in charge who are laboring unceasingly to make it a great success.

At the conclusion of his address the President called for the annual reports of the various officers and chairmen of committees which were presented in the following order.

Report of the Board of Trustees.

Report of the Finance Committee.

Report of the Treasurer.

Report of the Secretary and Librarian.

Report of the Delegate to the State Board of Agriculture, Wilfrid Wheeler, Delegate.

Report of the Committee on Lectures and Publications, William J. Stewart, Chairman.

Report of the Committee on Prizes and Exhibitions, John K. M. L. Farquhar, Chairman.

Report of the Committee on Plants and Flowers, T. D. Hatfield, Chairman.

Report of the Committee on Fruits, Wilfrid Wheeler, Chairman.

Report of the Committee on Vegetables, J. B. Shurtleff, Jr., Chairman.

Report of the Committee on Gardens, Charles W. Parker, Chairman.

Report of the Committee on Children's Gardens, Mrs. R. G. Shaw, Chairman.

The reports as presented were separately accepted and referred to the Committee on Publications.

The meeting was then dissolved.

WILLIAM P. RICH,
Secretary.

HORTICULTURAL PAPERS AND DISCUSSIONS.

PLANT COLLECTING IN THE HEART OF CHINA.

By E. H. Wilson.

Delivered before the Society, with stereopticon illustrations, January 8, 1910.

Any garden, greenhouse, or florist's shop will speedily prove to those interested how deeply indebted we are to the different parts of the world for the beautiful plants and delicious fruits we have around us and enjoy so much. It is true that the bulk of our every-day flowers and fruits are the result of the cultivator's skill, but the raw material necessary for him to work on had to be procured first. To secure this the world has been ransacked to such an extent that few countries remain unexplored.

Our subject today is "Plant Collecting in the Heart of China" and in order to better understand it a glance at the topography of China may be useful. China proper is, roughly speaking, a nearly square tract of country, 20° of longitude by 20° of latitude. Its southern part is just within the tropics, while the northern part enjoys a very cold climate indeed. The climate is essentially continental, with a rainfall varying from 30 inches in the north to over 100 inches in the south. The country is split up into a series of wild mountain ranges, fertile valleys and plains, and is drained by a network of rivers, two of which, the Yangtsze and Yellow Rivers, rank among the largest rivers of the world.

The Yangtsze River has its source in the highlands of Central Asia and after pursuing a tortuous course due south through wild and unknown territory for 1000 miles suddenly turns east and flows right through the heart of China for a distance of 2000 miles, emptying itself into the Yellow Sea just north of Shanghai. The Yangtsze is navigable for steamers as far as Ichang, 1000 miles from its mouth, and a huge fleet of merchant steamers ply constantly on its waters. The journey, however, is dull and uninteresting

being through one vast alluvial plain. Here and there a few hills crop out and at Kiukiang the Luschan Mountains approach the river making a break in the monotony. As Ichang is approached the country begins to get broken up and by the time the town is reached we are fairly among the mountains.

These mountain ranges vary in Central China from the low foothills around Ichang to peaks 8000 to 10,000 feet high, the latter themselves being spurs from the gigantic snow-clad ranges of the Chino-Thibetan borderland. In such a mountainous country, affording such altitudinal extremes and favored with a copious rainfall, a rich and varied flora is to be expected. Few, however, realize the enormous richness of the Chinese flora. The most competent authorities estimate it as containing no fewer than 15,000 species, half of which are peculiar to the country. These figures speak for themselves and yet fail to give a truly adequate idea of the profusion of flowers. The wild mountain fastnesses of Central and Western China are simply a botanical paradise, with trees, shrubs, and herbs massed together in bewildering, chaotic confusion. On arrival in a new and strange country it is difficult to recognize the plants one is familiar with under cultivation in our gardens and many months necessarily elapse ere one is in any sense familiar with the common plants around. During the ten years I have travelled in China I have collected some 65,000 specimens, comprising about 5,500 species, and sent home seeds of over 1,500 different plants. Nevertheless, it was only during the latter half of my travels that I was able to grasp an intelligent idea of the flora of China and properly appreciate its richness and manifold problems.

Now in the heart of China there are two ways of travelling: — on the rivers, by means of specially constructed boats, and overland, by means of sedan-chairs and porters.

By river: — The boat shown in the illustration is the kind ordinarily used for travelling on the upper Yangtsze. Such boats are styled house-boats by foreigners residing or travelling in China. Travelling up river is painfully slow, the journey to Chungking from Ichang (about 400 miles) occupying a month on the average. But the time is well spent. Immediately to the west of Ichang the world famous Yangtsze gorges commence. These extend westward

for about a hundred miles and afford some of the most sublime and awe-inspiring scenery in the world. The cliffs are of limestone, often a thousand or more feet sheer. In these gorges the river is narrowed to less than half its usual breadth, and the difference between winter and summer level is between 60 and 120 feet.

Between Ichang and Chungking the Chinese Gazetteer enumerates a thousand rapids and dangerous rocks. If the journey is made in winter this does not seem an outlandish estimate but in the early summer, with the water 20 to 30 feet higher, many of the vigorous rapids alternating with smooth stretches of river disappear along with boulder-strewn shores, rocks and islets, giving place to a broad and tremendous volume of water swirling seawards at the rate of 7 to 10 knots per hour, forming many dangerous whirlpools. It is not possible to exaggerate the sublimity and risks of the navigation of the upper Yangtsze. Of the vast fleet of boats which navigate its perilous waters, 500 on an average are annually wrecked and one-third of the cargo transported is damaged by water. I have had my own share of accidents and have witnessed many catastrophes, but perhaps enough has been said to impress you with the dangers of travelling on the upper Yangtsze.

Overland travel: — A marked and striking feature of Central and Western China is the absence of pasture-land and roads as we understand the term. A main road in these regions is only 6 to 8 feet wide and usually in a sorry state of disrepair, whilst an ordinary road is a mere sheep-track. There is nothing fitted with wheels in these parts and everything has to be transported on men's backs.

Now a word or two with respect to transport may be interesting. No traveller in these regions who possesses any sense of self-respect should journey without a sedan-chair, not necessarily as a conveyance but for the honour and glory of the thing. Unfurnished with this indispensable token of respectability he is liable to be thrust aside on the highway, to be kept waiting at ferries, to be relegated to the worst inn's worst room and generally treated with indignity or, what is sometimes worse, with familiarity, as a peddling foot-pad who, unable to gain a living in his own country has come to subsist on China. A sedan-chair even though it is carried piecemeal is far more effective than a passport though this, of course, is indispensable.

On all the main roads there are inns of sorts, usually very filthy, for the accommodation of travellers but on the byways, and more especially in the mountain districts, accommodation is hard to find and of the meanest description. Here, back again in civilization, I often shudder when thinking of the filthy and abominable lodgings I have suffered during my peregrinations in the heart of China.

Having now given a brief description of the country, its mountains and methods of travel, we will proceed to the main subject of our discourse, namely, the Flora of China.

One feature of the Chinese flora and one which is of peculiar interest to all garden lovers is that it includes the original types of so many of our most familiar garden plants and the home of many of these is the immediate neighborhood of Ichang. For example, the chrysanthemum. This queen of autumn flowers is, as you all well know, a native of China and the wild forms, both *C. indicum* and *C. sinense*, are common weeds around Ichang. The chrysanthemum has been cultivated in China and Japan from time immemorial and up to the middle (1860) of last century the introduction of new varieties from these countries to the occident was considered of great importance. Now all is changed, China and Japan today are acquiring the new varieties raised in this country and in Europe.

Chrysanthemum sinense was first cultivated in Europe in the gardens of Holland as early as 1689, no less than 6 kinds being known. These were subsequently lost and when the plant was again introduced, in 1789, through the agency of Sir Joseph Banks, the plant was absolutely unknown to Dutch gardeners.

Chrysanthemum indicum was cultivated by Philip Miller in the Chelsea Physic Gardens in 1764, having been discovered in 1751, near Macao, South China, by Osbeck. This species has, however, had much less to do in the evolution of our present-day chrysanthemum than has *C. sinense*.

Again take the rose: — *Rosa indica*, the Chinese monthly rose, is the parent of the tea rose. It is native of the Ichang neighborhood where wild specimens were discovered by Dr. Henry. *Rosa indica* was introduced into England by Sir Joseph Banks in 1789. Altogether about 30 species of roses are known from China and rose-bushes are extraordinarily abundant. In the warmer parts we

find *Rosa laevigata, R. microcarpa, R. microphylla,* and *R. Banksiae*; in the cooler places are *Rosa moschata, R. multiflora, R. macrophylla,* and *R. sericea.* Other Chinese species are *R. bracteata, R. wichuraiana* and *R. rugosa.* Take away these and their numerous progeny and our rose gardens would look sorry objects.

The peach, perhaps the first of all fruits, is likewise a native of China. It reached Europe from Persia and in all probability travelled thither by way of the old trade route from China, via Bokhara. Other notable plants are: — *Rhododendron* (*Azalea*) *sinense, R. indicum,* camellias, Chinese asters (*Callistephus hortensis*), sweet orange, mandarin orange, lemon, grape fruit, and lastly, but not the least, *Primula sinensis.*

This plant, the parent of the Chinese primroses of our greenhouses, is native of Ichang, where it occurs in great abundance on the dry, precipitous, limestone cliffs of the Ichang gorge and its lateral glens. The wildling is a true perennial with flowers a uniform mauve-pink color. *Primula obconica* occurs in this same region but in moist loamy situations.

For the sake of convenience and in order to make the subject clear I propose to divide the flora into altitudinal zones or belts. The nature of the country lends itself to this; indeed, this seems the only tangible way of dealing with a subject so vast and unwieldy.

The climate of the Yangtsze Valley up to 2000 feet altitude is essentially warm-temperate. Rice, cotton, sugar, maize, and tobacco are the principal summer crops; in winter opium, pulse, wheat, and rape are generally grown. The flora is of a warm-temperate nature, the following plants being characteristic: — *Melia Azedarach, Phyllostachys mitis, Trachycarpus excelsus, Hibiscus mutabilis, Lagerstroemia indica, Ficus infectoria, Gardenia florida, Melastoma candida, Gleichenia dichotoma, Pinus Massoniana, Cupressus funebris,* etc., etc.

Between 2000 and 4000 feet we have an evergreen belt composed principally of various Laurineae and oaks. The Laurineae constitute fully 50% of the vegetation in this zone. This belt is interesting also as being the home of nine-tenths of the monotypic genera, so prominent a feature of the Chinese flora.

From 4000 to 9000 feet is the largest and most important zone of all and is composed principally of deciduous flowering trees and

shrubs characteristic of a cool-temperate flora and belonging to familiar genera. To these must be added forests of Conifers and many ornamental tall-growing herbs. It is in this zone that we find the astonishing variety of flowering trees and shrubs which is the preëminent feature of the Chinese flora: — of Clematis 65 species are recorded from China, Lonicera 60 species, Rubus 100 species, Vitis 35 species, Euonymus 30 species, Berberis 40 species, Acer 40 species, Viburnum 40 species, Ilex 30 species, Prunus 50 species, Senecio 110 species, and so I might continue. Pyrus is a prominent family in the belt and is in China what Crataegus is here in the United States of America. The genus is in a dreadful mess and we have no real idea of the number of species.

Amongst such enormous wealth it is difficult to make selections, but if any one family has outstanding claims it is Rhododendron.

As in the Himalaya so in Western China Rhododendrons are a special feature. Indeed Rhododendron is the largest genus recorded from China, no fewer than 150 species being known. I, myself, have collected about 80 species and have introduced about 50 odd species to the Arnold Arboretum and elsewhere. About 25% of these are new and hitherto undescribed species. Rhododendrons commence at sea-level, but do not get really abundant till 8000 feet is reached. They extend up to the limits of ligneous vegetation, 15,000 feet circa. Rhododendrons are gregarious plants, and nearly every species has a well-defined altitudinal limit. In size they vary from alpine plants only a few inches high to trees 40 feet. In color they range from pure white, through clear yellow to the deepest and richest shades of scarlet and crimson. In June the mountains are one mass of color and no finer sight can be imagined than miles and miles of these mountain sides covered with Rhododendrons in full flower.

In western China the character of the flora above 9000 feet changes immensely, and the narrow belt, 9000 to 11,000 feet, forms the hinterland between the temperate zone with its wealth of flowering trees and shrubs and the alpine zone with its equally great variety in herbs. This narrow belt is mostly moorland and where the nature of the country admits, forest. The moorlands are covered with dwarf, small-leaved Rhododendrons and scrub-like shrubs, chiefly Berberis, Spiraea, Caragana, Lonicera, *Potentilla fruticosa*,

and *Hippophaë rhamnoides*, with willows, prickly scrub-oak, coarse herbs, grasses, and dense impenetrable thickets of dwarf bamboo.

The forests are composed exclusively of Conifers, chiefly larch, spruce, silver fir, hemlock, and here and there pines. Specifically we know very little about the constituent of these forests, but, to illustrate their wealth I may mention that on my last journey I collected some thirty different species of spruce! These forests of China are unfortunately fast disappearing and are only to be found in the more inaccessible parts.

The tree limit varies according to rainfall and may be put down at between 11,500 and 12,000 feet.

Our final zone, the alpine zone, extends from 11,000 to 16,000 feet. The wealth of herbs in this belt is truly astonishing. Their variety is well-nigh infinite and the intensity of their colors a striking feature. Pedicularis with 100 species is perhaps the most remarkable constituent of this zone. These are largely social plants and occur in countless thousands supplying all the colors save blue and purple. These Pedicularis are really most fascinating plants and it is a great pity that their semi-parasitic nature prevents their cultivation. Senecio with 100 species supplies the yellow and is represented from cushion plants to strong herbs 6 feet or more tall. Gentiana with 90 species supplies the blue. These again are social plants and on sunny days the ground for miles is often nothing but a carpet of intense blue. Corydalis with 70 species supplies both yellow and blue and is not to be denied a place in this floral paradise.

Then there is Primula. This genus is represented in China by some 90 species, four-fifths of which occur in the west. These, like gentians, take unto themselves in their season large tracts of country and carpet it with flowers. Sometimes it is a marsh, at other times it is bare rocks or the sides of streams. One of the most beautiful is *Primula sikkimensis*. Along the sides of streamlets and ponds this species is as common as is the cowslip in some English meadows. Associated with it we find its purple congener *P. vittata*. Other striking species are *P. Cockburniana* with orange-scarlet flowers, a color unique in the genus, *P. pulverulenta*, a glorified *P. japonica* with flower-scapes 3 to 4 feet tall, covered with a white meal and flowers of a richer color, and *P. Veitchii* which is best described as a hardy *P. obconica*.

Incarvillea compacta and *I. grandiflora* both with large, scarlet flowers and *Cypripedium tibeticum* with its enormous pouches, dark red in color, are other striking herbs. Also we have Meconopsis in half a dozen species — *M. Henrici* with violet colored flowers, *M. punicea* with dark-scarlet flowers, and *M. integrifolia* with yellow flowers 8 inches or more across and possibly the most gorgeous alpine plant extant.

The limit of vegetation is about 16,500 feet, a few cushion plants belonging to Caryophyllaceae, Rosaceae, Cruciferae, and Compositae, with a tiny species of Primula and *Meconopsis racemosa* being the last to give out. Above this altitude are vast moraines and glaciers culminating in perpetual snows. The snow-line cannot be less than 17,500 feet. This, though at first sight remarkable, is easily accounted for by the dryness of the Thibetan plateau and highlands to the immediate west.

Having briefly outlined the different altitudinal zones and instanced some of the more striking plants characteristic thereof, it may be of interest to point out the altogether anomalous condition of things obtaining in the river valleys of western China. These valleys, between 4000 and 9000 feet, enjoy a much warmer climate than their altitude warrants. They are all very similar being narrow and shut in by steep and lofty mountains. The climate is dry and the flora characteristically xerophytic. The shrubs are characterized by being either spinous with very small leaves, or, the leaves and young shoots are covered with dense, felt-like hairs. The herbs have either tuberous roots, fleshy leaves or stems. The thorn apple (*Datura Stramonium*), henbane (*Hyoscyamus niger*), and *Verbascum Thapsus* are common roadside weeds. Artemisia is the genus richest in species and individuals. From an ornamental standpoint, however, the various species of lilies are the most important constituents of this river-valley flora. Thirty-three species of lilies are known from China, 17 of which are peculiar, and the majority are denizens of these warm, dry, river valleys. Of these we have *L. Henryi, Brownii, chloraster, leucanthemum, myriophyllum, Bakerianum, formosum, sutchuenense,* and many others.

In the valley of the Tung River, in the far west of China, an American plant, the prickly pear (*Opuntia Dillenii*), has become

naturalized and miles and miles of the river banks are covered with this plant. Associated with this plant is a mimosa-like legume. So much does the presence of these two plants approximate to what obtains in Texas and New Mexico that if a traveller could be suddenly dropped there from a balloon or aëroplane he would be unable to tell from the nature of the flora around whether he was in the above states of America or in China!

Another interesting fact and one that has peculiar relation to the flora of western Hupeh is the number of plants bearing the specific name, *japonica*, which are only Japanese by cultivation and really Chinese in origin. The following well-known plants are examples: — *Iris japonica*, *Anemone japonica*, *Lonicera japonica*, *Kerria japonica*, *Aucuba japonica*, *Senecio japonica*, and *Eriobotrya japonica*. Possibly some of these (and there are heaps more) may be common to both countries but, I am convinced, that when the subject is properly threshed out it will be found that fewer plants are common to both countries than at present are generally supposed to be.

The affinity of the Chinese flora with that of contiguous and distant countries is another interesting theme, but time and space forbid of our discussing it in a general way. There is, however, one phase of this subject which cannot be omitted, namely, the ancient character of the Chinese flora and its close affinity with the flora of the Atlantic sea-board of the United States of America.

That the Chinese flora is an ancient one is evidenced by the number of old types it contains,— for example, *Ginkgo biloba* (maidenhair tree). In ancient times this tree was found not only in Asia but in Western Europe and in Greenland also, fossil remains being found in the Jurassic beds of these countries. Today it exists only in China and Japan and as a cultivated tree, being preserved to us by the Buddhist and the religious communities. *Cryptomeria japonica* is another old type preserved through the same agencies. Cycas, Cephalotus, Torreya and Taxus are other old types which occur both in a wild and cultivated state in China today. Many of the old types of ferns such as Osmunda, Gleichenia, Marattia, and Angiopteris are commonly and widely spread in China.

The affinity between the floras of Eastern Asia and the Atlantic

states of America has long been recognized and the more we learn of the Chinese flora the stronger is this affinity emphasized. On my last journey in China I discovered, for the first time in history, a species of Symphoricarpos. Heretofore this genus was unknown outside of the American continent. Indeed the most interesting result of our extended knowledge of the Chinese flora is the discovery, in the heart of China, of representatives of genera originally known only from the Atlantic side of the United States of America. In fact, the headquarters of certain genera originally known only from the southern states of the United States of America is now proven to be the Chinese continent.

Magnolias afford a good illustration of this remarkable affinity. This genus, absent from Europe and western North America, is represented by 7 species in the Atlantic side of this continent and by 12 or more species in China and Japan.

The following brief list still further illustrates this: —

Genera common to China, Japan, and the Atlantic side of the United States of America.

China and Japan		United States of America	
Genus	No. of species	Genus	No. of species
Magnolia	12 species	Magnolia	7 species
Schizandra	7 "	Schizandra	1 "
Itea	4 "	Itea	1 "
Gordonia	3 "	Gordonia	2 "
Hamamelis	2 "	Hamamelis	1 "
Shortia	3 "	Shortia	1 "
Catalpa	5 "	Catalpa	2 "
Negundo (Acer)	5 "	Negundo (Acer)	2 "
Wistaria	4 "	Wistaria	1 "
Astilbe	10 "	Astilbe	1 "
Podophyllum	7 "	Podophyllum	1 "
Illicium	7 "	Illicium	2 "
Stuartia	2 "	Stuartia	2 "
Gleditschia	7 "	Gleditschia	3 "
Nyssa	1 "	Nyssa	5 "

Again we find genera represented by one species each in China

and the United States of America,— for example, the tulip tree (Liriodendron), the sassafras, the coffee bean tree (Gymnocladus), and the lotus lily (Nelumbium).

But perhaps even more remarkable than anything else in plant distribution is the fact of the same species occurring in China and Japan and in the Alleghanies, and nowhere else in between. *Diphylleia cymosa* is an example of this. The eastern Asia form is absolutely identical with the Alleghany form, showing no variation though the two habitats are separated by 140° longitude!

The explanation of this remarkable affinity is to be sought in ancient glacial phenomena. There can be little doubt but that in pre-glacial times the latitude around the present Arctic circle enjoyed a warm temperate climate and that the land connection between eastern Asia and America was complete. The homogeneousness of the Arctic flora is most marked and this lends support to the hypothesis that the interchange between eastern Asia and America took place in high northern latitudes.

Conclusion.

In the foregoing, largely by means of pictures, I have attempted to give some idea of the marvellously rich flora of Central and Western China. Though much work has been done it must not for one moment be supposed that the Chinese flora is in any sense exhausted. Large tracts of country and even whole provinces, such as Honan, have never had a plant collected in them. When it is remembered that in China every glen and mountain range possess plants peculiar to themselves it will at once be understood that our subject is far from being exhausted. It is, indeed, inexhaustible.

My last expedition, recently concluded, was promoted by Prof. C. S. Sargent in the interest of the Arnold Arboretum. As the result of this expedition seedlings of nearly 900 different plants are at this present moment growing in the nurseries of that institution. Seeds and plants, too, have been distributed in a most liberal way to ardent cultivators in this country and in Europe, in order that in so far as is possible nothing may be lost. The hardiness of these new introductions is the crucial thing. This must of necessity

be a matter for experiment. All that can be said at present is that in England these new Chinese plants have proved much hardier than was expected and are giving every satisfaction. Since deciduous trees and shrubs generally from China and Japan thrive better here than in England there is reasonable hope that the majority of these new introductions, when established, will prove hardy here around Boston. Should, however, only a moderate percentage prove hardy they cannot fail to have great influence on our gardens in the near future. A writer in a recent Kew Bulletin declared the present to be the "Chinese era in horticultural history." Ladies and Gentlemen, this is a strong term but those interested will speedily learn that it is a simple truth.

Plant collecting, like everything else, has its own peculiar difficulties and disappointments. Nature herself, the birds of the air, and the animals of the field and woodland often seemingly combine and prevent the collecting of seeds of this or that particular plant. These, however, are minor things. But no collector, be he ever so energetic, can accomplish much unless ably supported by the men at home who handle the seeds and cultivate the plants. Delays in sowing the seeds, too much or insufficient water, and a hundred and one things may ruin the work of the collector in the field. For my own part I have been singularly fortunate in this respect. In England my seeds were handled by the foremost propagators in that country. In America by Jackson Dawson and others. I take this opportunity of placing on record my whole-hearted appreciation of the care and attention these competent and skillful propagators have bestowed on the seeds and plants I have been privileged to introduce.

THE USE OF WATER IN COMMERCIAL GARDENING.

By H. M. Howard, West Newton, Mass.

Given before the Society, January 15, 1910.

Water is the great essential to all plant growth. No growth whatever can go on long without the necessary amount of water being present. Not even a seed will germinate without water. We may have conditions of heat, light, and air favorable but if conditions of moisture are unfavorable there will be poor germination or none at all.

Too much water with a low temperature will cause seed to spoil. Very careful attention is needed to get a good germination of seed under glass. The ground should be thoroughly wet and allowed to stand a few days, two or three, then dug over and made fine. The seed is then sown and pressed firmly into the soil. Proper temperatures for germination vary with varieties.

The closer the seed is to the soil the more readily it will absorb water. The soil may be made firm over the seed by use of hoe, spade, or board. In outdoor work the roller is often a great help.

The seed properly sown and covered will begin at once to absorb water and continue to do so till germination is complete. If for any cause there is a lack of moisture the germination will be unsatisfactory no matter how favorable the other conditions are.

The firming of the surface does not increase the amount of water in the soil. It does increase the capillarity of the surface soil so that enough water can be brought up from below to germinate the seed.

I have seen large fields of lettuce and onions where the germination was very poor simply because seeding was delayed until the surface soil particles were too dry to pack closely enough to promote good capillarity.

A difference of a few hours will often make a great difference in

germination. Dry seeds put into dry soil and kept dry will never germinate.

Freshly plowed soil has usually a dampness about it which is sufficient if properly firmed about the seed to promote capillarity of water toward the surface and germinate the seed.

When sowing beans in a very dry time, it is advisable to open only about four rows at a time. Sow and cover those before opening any more. I have seen some sad failures of bean planting in a dry time because the furrows were allowed to dry a few hours before covered in.

Cultivation should begin as soon as possible after the crop is up or after a rain to preserve the soil moisture. The less the depth of cultivation the more frequent it should be. One-half to three-quarters of an inch is good for lettuce, spinach, radishes, and celery. Two inches is good cultivation for corn, peas, beans, and tomatoes. I like to get over all the farm with shove hoes or cultivator once in five days. It is just as necessary to cultivate in wet as in dry weather.

Neglecting to cultivate in wet weather will allow the roots to develop very near the surface. Then a sudden change to dry weather and intensive cultivation will cut off so many roots that the crop will be liable to suffer from blight or other disease.

Every plant requires a certain amount of water to produce a healthy growth and if by root pruning we cut down the possibility of the plant getting that amount of water we are liable to get a diseased plant.

The cultivation and hoeing lets air into the soil, kills weeds, preserves soil moisture, prevents blight and disease, and makes the plant grow.

All the food of plants is taken by them in solution. The water which holds and carries this food is thought to be the hygroscopic water, that which is clinging to the soil particles.

There is a great difference in soils in ability to hold water due to the size of the soil particle and the amount of humus in the soil. The smaller the soil particle the greater its capacity to hold water. A large amount of humus in the soil makes it more retentive of moisture. A clay soil has very small particles; a sand soil has large soil particles.

Plants send out their roots more evenly in a sandy than in a clayey soil. The roots go down four feet or more and as far horizontally, sending out a multitude of root hairs which come in contact with the soil water and take it up with what food it contains to the leaves where the plant can make use of it.

Plants when young need very little water but their demand for it increases till near maturity. Crops like corn, beans, onions, tomatoes, and squash are good examples. They pay well for irrigation.

The surface soil of our gardens is full of microscopic life which is bound to be of increasing interest in years to come. Plant diseases are caused by microscopic life. All this life needs water to develop and we need water to aid us in spraying mixtures and solutions to fight these plant diseases. The finer we can make the spray in applying these mixtures the more beneficial they are.

The water used for washing vegetables for market must be from a good source. Well or spring water while cold is the very best for use in summer as it will cool, clean, and freshen them. Vegetables that are washed clean at time of harvesting and cooled by cold water will look better and stand up better and be better than those washed any other way. If there is any dirt left on the spinach or lettuce it will not keep well.

For washing radishes, beets, and onions there is nothing better than a New Boston nozzle on a three-quarter inch hose of city water supply. For carrots, parsnips, and celery a brush must be used and plenty of rinse water.

To wash lettuce nicely without breaking do not allow too many heads in the tub at once. Have a supply pipe from above near the centre of the tub with a quarter-inch stream falling fifteen inches free from the pipe. Bring each head by hand under this stream to rinse and then place on a shutter to drain before packing.

The rainfall in Massachusetts over a period of from 1871 to 1910 has averaged 42.71 inches a year. This rainfall is usually well distributed so that most farm crops mature well. But in 1879 the rainfall was phenomenal, being 65.53 inches, and in 1908 the rainfall was again phenomenal, being only 30.07 inches.

But every summer lately we have had droughts of varying length and there are very few commercial gardeners but have found it

necessary to use some water for irrigation. The city or town water supply has been used first and is now the most common one in use. The expense of such supply makes us all very careful of the amount we use. The cost of water in the different towns and cities varies from 15cts. to 30cts. per thousand gallons. But besides this cost there is the expense of applying the water to the land and this varies in my experience from 2cts. to 20cts. per thousand gallons.

The methods of applying water are by spraying, running in furrow, and flooding. Of these methods the spraying and furrow methods are most in use.

Whirling spray machines are in common use and must be set so as to overlap each other in their work; they are economical of time and labor and put the water on in a fine spray doing little if any damage to the crops.

The hose method of watering costs a lot of money for labor and there is considerable loss of crop at times because of being broken down by the hose or men in getting ready to water.

There is one great advantage in the hose method, you can easily get the water where it is wanted.

A three-quarter inch hose with a full three-quarter hose bibb will deliver 900 gals. of water an hour where the piping is ample size. However, when watering all day I have never been able to get on more than about 600 gallons an hour for each line of three-quarter hose. Never use more than one fifty-foot piece as the friction cuts down the delivery. The cost of labor in applying water with this size hose and boy labor has been with me about 20cts. per 1000 gallons.

The use of the inch and a quarter hose enables us to put on about four times as much water per hour and by using man labor will cost in my experience about 10cts. per 1000 gallons.

If you are going to use city water get as large a supply and meter as you can. A two-inch pipe will carry all the water needed on the average market garden farm of ten acres. Get your two-inch iron pipe on as close to your meter as possible and use two-inch for all mains and one and a half for laterals if the hose method is to be used. I would not run any lateral of less than one and a quarter inch pipe for any hose.

The mains should be along roads, drives, or headlands, and the laterals run off fifty to sixty feet apart for hose watering. If you can run the laterals at right angles to the prevailing winds it will enable you to have the water put on to much better advantage. Have numerous flange unions on your mains to enable you to make repairs or changes in fittings and to drain out the system in the fall.

I prefer to have all pipes for field work on top of the ground.

Put in good valves and do not spoil them in fitting or careless use. It is easy enough to spoil a valve by letting it fill with dirt and then trying to screw it down, or by allowing it to freeze, or by taking hold of a valve on the wrong side when screwing it on or off; it should be gripped on the side where the thread is being made up. When setting down a valve set it down hard and then turn back just enough to loosen the spindle.

Put hose bibbs or lever nozzle on all laterals where hose watering is to be done, and have them not over fifty feet from either end. Then divide up the remaining distance so that no space between nozzles will be over one hundred feet. Never have a hose bibb or lever nozzle on the extreme end of a line as it is almost sure to be injured and give poor service.

The best hose you can buy will be found most economical; three-quarter inch costing about 16cts. a foot and one and one-quarter inch costing about 30cts. Get that hose with a coupling having the full size inside diameter of the hose.

In care of the hose keep it coiled when not in use; attach to the hose bibb and roll out in one direction as wanted. Have washers to fit the hose and when through using make one roll of hose from bibb of good size, tie this roll and continue to roll till all is coiled, then couple with washer inside and tie the coil and place in shade till wanted again.

It takes 27,154 gallons of water to cover an acre one inch deep. At a cost of 30cts. per 1000 gallons as applied, each application of an acre inch will amount to $8.15. July and August and parts of June and September are the times when water is liable to be needed in excess of the rainfall.

The water may be put on any time of day or night with a preference for the night or early morning where the spraying method of application is used. If the water is put on with a three-quarter inch

hose it will take about four days to get over an acre; if put on with an inch and a quarter hose it will not take over one day.

Running water in the furrow is a most ecomonical way of applying water so far as labor is counted. This method is very satisfactory where the soil is loamy and slope convenient. It is used for watering cabbage, cauliflower, cucumbers, corn, and tomatoes.

The use of water on my farm has cost me a little over $30.00 per acre per year over a period of ten years and has given good satisfaction.

Benefits.

The irrigation of crops may be made to increase the yield from 50 to 100 or 150 per cent and at the same time immensely improve the quality of the crop making it more salable.

The time of maturity may be hastened from three to ten days by judicious use of water. It is particularly noticeable on crops of corn, beans, and tomatoes.

All the crops we send to market are from 70 to 95 percent water and we should aim to always have enough present in the soil to supply all the plants need.

Where one crop is thoroughly irrigated the ground is in excellent condition to cultivate and prepare for the next succeeding crop. For example, we apply two or three acre inches of water to a field of beets in late June and the beet crop matures very rapidly and we have considerable water left in the soil when preparing this same field for celery and lettuce.

In my experience I have found all crops to respond most heartily to irrigation but particularly cucumbers, tomatoes, beets, lettuce, carrots, celery, onions, summer squash, and radishes.

Irrigation makes possible a more intensive business. I think we can spoil any crop with too much water but most of us never will.

The use of water in irrigation seems to cause neglect in cultivation, not because lack of the grower's faith in cultivation but because the help are all busy harvesting the increased crop caused by irrigation.

The Skinner system of irrigation is being installed on many farms in eastern Massachusetts and wherever installed it seems to be giving great satisfaction.

It costs as I have installed it about $40.00 per acre and ought to be good for several years.

It consists of a large main from which laterals are taken off every 56 feet and run parallel to one another.

Every lateral is fitted as it leaves the main with a valve and then a union fitting so that the lateral may be easily revolved. Inside this union fitting is a strainer which removes any dirt or rubbish which may be in the water as it comes in the main. There is a handle to this union fitting and through it all the dirt collected on the strainer may be blown out.

These laterals after being set up are drilled and tapped every four feet and fitted with nozzles of brass having discharge openings of $\frac{1}{32}$ of an inch.

The water supply is turned on from the main and each one of the nozzles begins to spurt out water which goes 28 to 30 feet from the nozzle with a pressure of 50 to 55 lbs. There is always movement of air enough to break up these fine streams so that when the water reaches the ground it is very fine and will not injure any crop by falling on it.

The union fittings have handles by which to set the nozzle lines at any angle and always at right angles to line of the lateral.

Galvanized pipe should be used for all the laterals and for runs of 200 feet I have used 75 to 80 feet of one inch and the balance of three-quarter-inch pipe.

There are some parts of fields that need more water than others and by placing nozzles nearer on the laterals in these places we can get all the water wanted.

The most convenient distance for laterals above the surface in my experience has been about three feet, using pipe or sash bar stock for posts.

I prefer to have laterals run at right angles to direction of prevailing summer winds as then the water will be more evenly distributed.

In using this system for lettuce or any other plant setting or watering for germination of seed the laterals may rest on the ground.

This system is particularly good for the small grower and for lawns; the water can readily be put on any time of day or night as needed.

The same system with a different nozzle is adapted to greenhouse

irrigation and I know is a big saving in amount of labor, costing not over 2cts. per thousand gallons to tend to its application.

Wetting down land for setting plants is practised whenever the soil is not moist enough to lump and hold together on being pressed together in the hand.

The amount of water to be used can easily be determined by experience but the whole of the surface soil to a depth of seven inches should be moist. It is best to use two applications of water, one to moisten the soil enough so it will work well, and another after the plants are set to settle the soil more closely about the roots.

The roots should be made so firm in the ground that the tender leaves of the plant will break before the plant is at all loosened in the soil, when testing to see if the plants are properly set.

Many plants need water before being taken up for transplanting. If not possible or economical to do this watering then the plants should be prepared for transplanting by standing them in water for a half-hour or more.

New roots will begin to grow at once and new white roots can be seen in twenty-four hours. Plants well filled with water as above explained will not feel the check of transplanting much.

In transplanting under glass it is best not to give much ventilation and if the air is getting too hot give shade. Keep the air about the plant moist and thus lessen the amount of water the roots will have to bring up for evaporation. After two days more ventilation can be given and shade removed.

A STUDY OF CONTINENTAL LANDSCAPE GARDENING.

By Albert D. Taylor, Boston, Mass.

Given before the Society, with stereopticon illustrations, January 22, 1910.

In making a study of continental landscape gardening, one finds that the field to be covered must be considered from a quite different view point than would American landscape gardening be considered. This art as seen on the continent has flourished in varying degrees of intensity for a number of centuries, and unlike the art in the American field, the growth of which spans but a few decades, it has not continued to develop along a consistent path for any great number of years free from the impeding influences of outside factors. In our own country there are a few well-known exponents of the art whose dominating influences have raised it as such to the high standard of today. The names of such men as Downing, Repton, and Olmsted are those which we at once associate with its progress. We need but study the lives of these men to understand thoroughly the history underlying and affecting the growth of the field in America up to the present day.

To cover comprehensively the European field in which the growth has been affected in widely different ways, the student must first bring to light the factors most potent in its history. I would not suggest that by so doing I would advise making a complete historical study. It is only by such an investigation that one brings to light, not the names of a series of individuals, but rather a number of dominating influences which have been the important factors in its development. These are three in number, and may be termed as: chronological, geographical, and political; each having its important bearing upon the varying character of continental landscape gardening.

To understand more clearly the meaning of these adjectives in their relation to the art, we first must understand that from a chronological viewpoint, the gardens of ancient Italy are but the fore-

runners of those typical of the great Renaissance which in turn leads us down to the gardens of modern Europe, many of the best examples of which are but those of the great Renaissance period preserved more or less carefully to the present day. From a geographical standpoint we must consider the wide variation in the topography of the different garden spots on the continent, ranging from the rugged landscape of Italy to the great flat expanses of country seen throughout France. This topographical variation had its marked influence on the general design of the gardens laid out in these different countries. Last but not least, the political influence brought to bear by the different rulers — emperors, popes, cardinals, and kings — effected the development of this art in a way little dreamed of by the superficial observer. This influence was most marked in Italy from the days of ancient Rome up to and through the period of the high Renaissance, extending well into the 16th Century; there being but one notable illustration in the French history, namely, the Great Gardens of King Louis the 14th, surrounding the palace at Versailles.

Now that I have defined the influential factors to be kept in mind during this discussion, let me say that while it is no difficult task to study the modern gardens of our own country and from that study to formulate well-marked conclusions upon the existing and the growing tendencies of the profession today, I freely confess that it is with a great deal more difficulty that one is enabled to formulate conclusions concerning the status of the foreign art. To study continental gardens and their relation to the growth of this art, it is necessary to confine ourselves not alone to the modern practice, but to turn back into the pages of history for authentic information. Strange to state the more we delve into the history of the subject the better informed we become with reference to its status as existing in Europe today. This is not often a generally accepted fact, but to the careful observer it at once becomes a stern reality.

It is my intention in the following discussion to confine my thoughts specifically to two great nations, a study of the gardens of which practically covers the field of continental gardening. These countries are Italy and France, in which the art has had its most marked development. It is from these countries, too, that the other countries probably have obtained their inspirations for the

development of the art. The lover of gardening might dwell for hours on the numerous details of the notable examples to be seen in the beautiful villas and chateaux of France and Italy, which are truly continental. I can, however, within the limited space at my disposal but cite the best examples and draw a few general conclusions from those.

As above stated, the clearest conception is to be obtained by tracing carefully its growth from the beginning in ancient Italy. One would do well to go back even farther than this into the gardens of Egypt, Persia, and Greece and study the gradual development up to the days where we begin. Suffice to say, it is from these countries that the art gained its initial inspiration. I would therefore first have you study with me the great masterpieces remaining to us from the early Christian era; such as have been partially spared to the present generation in varying degrees of preservation. Beginning with the celebrated gardens of Pompeii, once obscurely buried beneath the ashes of Vesuvius in the year 79 A. D., but long since brought to light through the efforts of the Italian Government, and restored with all due care, one finds a typical garden of ancient Italy. These gardens, filled with their miniature statuary and basins, and enclosed by colonnades or porticoes, all being beautifully carved in Italian marble, served as the outdoor homes of the aristocracy of that small city in those ancient days. Here in these small enclosed gardens, amply well supplied with vines and flowers, the wealthy families of Pompeii bathed in the sunshine and feasted upon the mural paintings surrounding the small rectangular enclosure. All of these gardens were on a miniature plan yet unquestionably harmonious in every detail. They represented the first real attempt at gardening which was undertaken by the wealthy class.

They are but one type however of the ancient gardens. There are left to us today, two other types widely differing in their architectural detail and their adaptation of design to the specific needs of their creators. These are represented in the picturesque ruins of the Villa Tiberus situated on the summit of the little Island of Capri, far out in the beautiful bay of Naples; and in the magnificent ruins of the wonderful Villa of Hadrian situated far across the great expanse of the Roman Campagna, among the Tivoli hills.

From the ruins of these two equally historic Villas the student sees in the decaying skeletons, an indication of the elaborate detail both in the architectural and gardening sculpture of that period. I refrain from mentioning in detail the much-heralded Villas of Pliny at Laurentum and at Tusculum for the reason that today there remains nothing on the site of these villas to tell the student of their original design. It is only from descriptions, and from the fine bits of statuary unearthed, and now the pride of various European art galleries that we can picture their once beautiful splendors. It is not so with the great Villas of Hadrian and of Tiberus, each of which at one time was the magnificent home of a Roman Emperor. It is here that the observer can ponder for hours, building in his imagination the pictures of beautiful entrance courts, stairways, baths, dignified marble-faced avenues, Greek theaters, and garden courts from the ruins scattered on every side. To be sure there is at best very limited ruins which would give to the student more than a real glimpse into the many beautiful conceptions of the design and sculpture which was the life of these gardens. The present generation is fortunate in having preserved for them even the little which we can study in these villas today.

These great villas are the landmarks of Ancient Italy and of the Roman Empire. They flourished during a period when the Emperors ruled supreme and the freedom for the exercise of an artistic temperament was at its best, with unlimited wealth and power at the disposal of these men. It was during these early centuries that such garden creations as those above cited were laid out, only to be devastated and robbed of their wealth of sculpture in the centuries of the dark ages that followed, when art in all Europe remained stagnated. Beginning with the dethroning of Augustus as Emperor by the Ostrogoths in the fifth century A. D., the death knell of gardening as an art was sounded. From then until the days of the early Renaissance marked by the beginning of the fifteenth century, this entire continental country was the scene of warfare and invading tribes. The constant turmoil between the empire and the papacy in the individual struggles of each for supremacy, left deep imprints on the history of the country. The invasions of the various foreign tribes including the Lombards, the Franks and many others from north of the Alps, not only served to

strip the country of all artistic tendency but removed from those great creations of the garden world already existing much that was at one time the pride of Emperors.

Art, as such, cannot flourish under the adverse influences of unsettled social conditions; it is an evidence of prosperity and of social harmony. The only evidence of the least tendency towards art in the gardening world during this long period is to be seen in the Monastery gardens. This much unsettled condition led to the establishment by little bands of people known as monks, a number of monastery gardens. These monasteries, established by St. Gregory and St. Benedictine grew through the natural desire of certain orders of monks to be away from the open exposure to political warfare, and to live in their own communities without fear of molestation. Situated among the hills of France and Germany, and at a later date in the lowlands, these self-supporting communities practiced the art of gardening merely as a means of support. No pretence from the standpoint of a decorative art was made. While this barren period of garden history is far from interesting to the student as such, it is a portion which bears an important relation to our discussion. Society, as such, having been demolished, business and commercial interests remaining unstable, the country showed but little evidence of progress. It seems necessary that we should cite this bit of history as a connecting link between the decline and the new birth of the continental art. Gradually social conditions changed, commercial prosperity in various cities flourished and with both the desire for homes out of the city became stronger. Small cities such as Florence, Venice, Bologna, Milan and others gradually emerged from this darkness as brightly illuminated spots of thrift in their relative commercial industries. It was thus but natural to assume that with this opening of the Renaissance period in the fifteenth century, evidenced first in northern Italy, the art of gardening should again flourish with the other arts.

Florence became the focal center of this outburst of art in general, and the villas seen today overlooking the city and the Arno were many of them conceived at this very period. The motives which inspired their construction were similar in character to those evidenced in our great American cities today, namely, the desire to be

away from the turmoil and the atmosphere of city life. From this period on, new life spread rapidly and the result was that for a period of more than two centuries Europe was the scene of an unprecedented tendency to build country homes for both winter and summer use. These beautiful villas were established among the hills of northern Italy and Switzerland, around the lakes, and on the shores of the Mediterranean.

Hand in hand with the development of art in sculpture and painting went this great gardening movement. The Medici family, which was the ruling power in Florence — at that time the art center of Italy — caused to be built the beautiful Villa of Poggio a Caino and others just outside of the city limits. These villas were but the modest forerunners of a score of elaborate villas built at a later date and seen today throughout Italy.

We have now reached in our discussion that which appeals to me as being the real heart of continental gardening — in Italy at least — and perhaps throughout Europe. This is a study of the gardens of the great Italian Renaissance. The student finds here a group of villas possessing a series of characteristics peculiar to this period. The ever dominating and foremost principle on which the design of these great villas is based, is that as the house is designed for its various uses with its numerous subdivisions, fulfilling different requirements, so should the garden be divided into its different parts for the enjoyment of the occupants of the building. Thus one finds a principle which is the key-note of the design at this time. There does not exist however any strong similarity of design in any two of these gardens. Each garden in itself is quite different from the preceding. Water, statuary, and certain types of vegetation are the ever present features; but the careful observer is always conscious of the guiding influence of a master hand that has by ceaseless study created something which though bubbling with grandeur and elaborateness of detail is fully in harmony with its specific location and with its surrounding landscape. This fact has always impressed the writer, namely: that in all of these celebrated villas, with few exceptions, the most careful thought and the best efforts of great artists and sculptors have been given to the general design of the garden and to the refined character of the statuary throughout, often to the apparent sacrifice of many architectural details

concerned with the building itself. The best talent in Europe was devoting itself to this work. Such exponents of the art as Bernini, Bramante, Bounalesci, Michael Angelo, and Vignola are associated with the best works of the high Renaissance. Can one then be surprised at the degree of perfection attained in even the very minor details.

The gardens of Italy, dependent first upon their design, are quite different from what many believe and picture them to be. These much-heralded old villas are not rich in their abundance of flowers; they are not virtual paradises on earth filled with vines and the beautiful flowering plants so common to the American garden. They rather may be described as wonderfully ingenious designs enhanced with an abundance of running water and statuary, the whole framed with a simple but dignified planting of trees and shrubs. They are designed with the idea that they may be gardens to look into and to look out from. An excellent illustration of the former is the Villa Lante, and of the latter is the Villa D'Este overlooking the Campagna.

As the Renaissance reached its height at the close of the 16th and the beginning of the 17th centuries the spirit of the gardening art changed very much. Gradually the influence of the Baroque period made itself felt, and the decline from the refined to the grotesque became very marked. An excellent example of this is seen in a careful study of the old Villa D'Este at Tivoli. Here at every turn the observer is confronted by these ambitious designs executed in plaster and stucco, and intended to convey the idea seen in the refined statuary of such gardens as those at the Villa Lante, and the Boboli Palace. This tendency marked the rapid decline of the most fruitful period in the history of continental gardening, a period the influence of which has been felt I might say throughout the entire world. The gardens of these celebrated villas of Italy may be summarized in a few words.

1. The dominating influence is the presence of an admirably adapted design set off with a great variety of running water used in different ways.

2. The topography of the country demanded comparatively small garden areas which were so ingeniously designed on the different terrace levels that the actual size of the garden was often over-estimated.

3. The presence of an abundance of statuary and interesting architectural features was the key-note of the garden.

4. A closely matted vegetation of Ilex, Myrtle, Cypress, Olives, and Pines, together with many smaller shrubs gave the dense shade which was required in this country of sunshine and intense heat.

It may seem that I am placing too much importance upon these gardens of Italy. I do not believe that the student of continental gardening can place too much stress upon the value of an intimate knowledge of the art as exemplified in Italy. These villas of Italy moulded through design to a nicety, combine use and convenience with art for art's sake to a degree which is rarely seen in an American garden.

There is another type of continental gardening widely varying from its predecessors in this Italian country. This type is well illustrated by one excellent example, namely, the great Chateau of Versailles. I might also mention the Chateau Vaux which together with the foregoing consummate two of the masterpieces worked out under the guiding hand of the celebrated landscape artist, Le Notre. The last-named Chateau is much less pretentious; but still equally as well worthy of careful study provided the time permitted. Versailles is the monument to the memory of King Louis the 14th and an emblem of his reign. A description of this wonderful park may give to us a clearer conception of the principles underlying the art in France, which are typical of the tendencies at the present day.

Here, unlike Italy, is a country of an entirely different character. It is a country with broad expanses of fertile lands marked by slight undulations admirably adapted to gardening on a scale of grandeur not to be seen in any other portion of the continent. King Louis the 14th established here just outside the City of Paris, early in the 16th century, these gardens of Versailles which consist of an immense park covering thousands of acres elaborately laid out and completely finished in every respect. This great park was allowed like other art creations of this kind to slowly decay after the great ruler's death, until the time of the French revolution when it was secured by the French government and preserved for the admiration of thousands of tourists every year. To describe adequately its interesting features would require a small volume;

their number and their scale of grandeur can be but partially grasped from the photographs now extant. Their extent, refinement of design, and harmonious details can only be fully appreciated by personal contact. To stand on the main terrace above the great orangery and view in the distance the equestrian statue of King Louis located at the end of the Swiss lake; to look again along the main alley over the fountains of Latona and of Apollo towards the grand canal; or perhaps over the series of pools to the fountain of Neptune which is the crowning triumph of the gardens, at once fills the student's mind with an indescribable admiration for the master genius who conceived and carried to its realization this beautiful conception of art. On either side of this main axis terminated at either extreme by the main terrace and the grand canal, and among the heavy growth of beech and bass wood are numerous small paths or alleys lined on either side with hedges of European beech. These alleys radiating in various directions focus at different intervals upon the many interesting fountains located at their intersections, and in turn upon the great Mirror lake, and the Colonnade which is a large circular area surrounded by a series of marble columns supporting arches under each of which is a marble basin. In the center of this great circle is a well-designed group of marble statuary known as the Rape of Proserpine. Beyond the Mirror lake the visitor comes upon the King's small English park, and here in the midst of extreme formality is a pleasing bit of naturalistic gardening.

Leaving the great gardens of Versailles and approaching the Grand Trianon and the Petit Trianon there looms up before the visitor two other parks adjoining this main park of Versailles. These parks, though not as elaborate in their detail, are equally as interesting. In the extreme corner of the Petit Trianon gardens is the little English Hamlet and its unique bit of English gardening, all of which was carried out in accordance with the wishes of that unfortunate Queen Marie Antoinette, to have something restful and natural, savoring with the spirit of the English landscapes.

Versailles is the great garden which is typical of the French art and the main characteristics may be summarized as follows:

1. Distinct formality with large areas devoted to Parterre work, all of which is closely clipped and edged to a nicety.

2. An elaborate display of fountains and marble statuary with broad expanses of water and formal pools.

3. The use of many herbaceous flowering plants in sharply defined border plantations surrounding the shubbery plantings.

4. The presence of very formal avenues of trees pruned to solid perpendicular faces of foliage.

The entire underlying principle may be summed up as design plus plantings as an accessory.

Unlike the Italian spirit of gardening in which the design was the strong underlying motive, very much subdued by plantings etc., the motive in these French gardens is design which is always the dominating spirit. In the Italian gardens the student is impressed with the wonderful adaption of the design to the specific location only after careful study, and he is not impressed with the formality seen on the scale of grandeur illustrated by the noted gardens of France.

I would not have you feel that the gardens of these countries as such are the only features worthy of study. Within the recent past the various cities have established beautiful parks, extensive boulevards, public squares and play grounds to the careful study of which much time might well be devoted. The city of Paris has done more than any other city on the continent to improve and plant its boulevards and parks. Other foreign cities among which are Reims, Nancy, and Orleans, together with a great number of the important cities of Italy, are fostering with a great deal of civic pride the growth of art as evidenced in these public improvements. The distinctive characteristics of these parks etc. are not of a widely varying nature except as influenced by the different variations of climate, etc. as seen on the Mediterranean coast and in southern Italy, where the vegetation used is as different in character from that of Northern Europe as is our own North different from the South. The time of distinctive types of gardens in the different countries of Europe is passing into history, and a more universal Continental art is replacing the old and widely differentiated influences. The progressive exponents of the landscape gardening art upon the continent are making their imprints on the gardening work over that entire country, and the tendency seems to be that in time to come there will exist no modern Italian, German, or French school

distinct in itself, only in so far as the topographical and climatic requirements of the various countries must demand a type of design and vegetation solely adapted to the various sections of country.

The period is fast passing, when as formerly, we needed to look to continental work for our inspirations. The profession upon the American continent, through its growing standards, is progressing rapidly to the point where from the very nature of the country and its problems we shall have a type of landscape gardening as distinctly American as has been the foregoing European. It is destined to be one from the study of which the student of the art will only be enticed as a matter of pure curiosity into these foreign fields. The age and attending sentiment still surrounding the continental masterpieces is something, which with intelligent preservation, will undoubtedly always fill the lover of the garden art with an admiration and appreciation which no sentiment associated with the American gardens can supply.

APPLE GROWING IN NEW ENGLAND AS A BUSINESS.

By E. Cyrus Miller, Haydenville, Mass.

Given before the Society, with stereopticon illustrations, January 29, 1910.

Perhaps no other phase of agricultural effort has been so prominently before the people of New England for the past year as has the apple industry. Everyone has taken to talking, speaking, or writing on this subject until it must seem that everyone must be at least reasonably well informed on the subject. While I have been talking for years about the great advantages which New England possesses for growing apples, both for home use and for commercial purposes, and while I have continued to plant new orchards and give better care to those already established, and while I am as optimistic as ever regarding the future of apple growing, I do believe the time has come to approach the subject in a most careful, sane, and conservative state of mind. Much has been said and written that, while in a measure true, has been somewhat highly colored and sometimes exaggerated, so that many who might be interested in this line of thought might become somewhat deceived as to the true facts in the case.

First of all, in my opinion, apple growing in New England is not a get-rich-quick proposition, neither is it the easy way of acquiring a competency that some might and do picture it. It is, however, in my opinion, one of the surest, safest, most interesting and profitable lines of agricultural effort that can possibly be associated with our section of the country. All natural economic conditions favor the development and extension of the apple industry with us. Our climate, which means the proper amount and relation of heat and moisture, as related to the growing and developing the crop; our soil, which means a soil which is reasonably well supplied with latent fertility; and our elevations, which afford us most excellent surface and drainage, all make for conditions which are unexcelled, if even equalled, in any other one section of our country.

The varieties which are peculiarly adapted to New England conditions are, when well grown, of the very highest degree of quality and excellence. Our markets are here in the East. Nearly one-third of the population of our entire land is found in the Eastern section of the country. New England apples, if of good quality, find a ready market in the chief cities of our great Middle West, and even the extensive orchards of Michigan do not by their nearness close the markets of Chicago and the Northwest to New England fruit. Our New England apples, particularly the Baldwin, are in great favor across the water, and this already great demand can be still further increased by a better business arrangement regarding the sale of our product there. Much is beginning to be said regarding both over-production of apples in the East and competition from Western box apples. I do not for a moment fear over-production in the best varieties and grades which we may grow. I have heard this talk, in various forms, all my life, and still the demand for apples which I may grow is greater each year and the average price per barrel is considerably higher this present decade than it was during the past decade. Neither do I fear the competition of Western box apples. If there is any overplanting of apple trees anywhere on our continent, and if there is to be an over-production of any grade of apples which reaches our markets, it is going to be, in my opinion, in Oregon and Washington, where perhaps it may be said they have gone apple crazy, and it will be this high-grade fruit which costs some $300 per car in transportation before it is even placed in our markets. When we adopt Western methods with our varieties we may be assured of all the markets we can supply. We have got to have a greater confidence in our soil, climate, varieties, and markets, or in other words, in this superb combination of economic conditions which places us in the strongest possible strategic position, and most of all faith in ourselves that we may utilize all these natural forces and produce the finest apples in the world. Some countenance and counsel large orchard operations in New England. Large operations are all well and good for those who are skilled in orchard work and in the modern methods of orchard management, but I believe the interests of the apple industry of New England will be best served by making the unit of orchard operations reasonably small. A few hundred trees or a few acres

should be the unit at the start for the average farmer apple grower. A few well-cared-for and profitable apple orchards scattered over many sections of New England, serving as a valuable object lesson as to the possibilities of this line of effort, would do more for the upbuilding of the industry than a few large orchard enterprises, even if they should chance to be well managed. No one thing will add such permanent value to our naked lands as will the planting upon them of apple trees that are of the varieties that are suited to their several localities. The value of a season's growth on an apple tree should be at least $1, and with the proper cultural treatment it should approximate $3 per tree. This measure of increase will add value to land very rapidly. For the further promotion and development of orchard planting in New England it might be well for the several States to pass statutes permitting the exemption from taxation of tracts of land planted out in orchards from the time of planting until maturity. Laws in our New England States should be amended so that orchardists should be better protected from the ravages of the deer. Outside the San José scale, the deer is the most serious menace to orchard operations which we have. Strange that we should handicap our agricultural development and prosperity by a misplaced sentiment regarding the proper measures of control of these animals.

As a distinct business proposition for the investment of capital under able, honest and efficient management, I cannot think of anything more inviting than an apple-growing company under corporate management. A company organized for this purpose and successfully conducted could not fail of assisting very materially in establishing the apple industry of our section on a far higher plane and firmer base. I cannot refrain from mentioning a few of the many points of advantage in a corporate form of management of orchard properties: First, the ability to purchase the best available locations for such orchards. Second to conduct all operations from the start on a basis of reducing expenses to a minimum. Third, to introduce modern methods of management which look to the ultimate end of fruit production of the best quality and the largest quantity, and to dispense with much of the usual crop producing that is found necessary in the average orchard. Fourth to plant orchards and care for them until the bearing period, and

then sell them to individuals who may desire them in small tracts for homestead purposes. Fifth, to furnish sufficient storage capacity to handle fruit with the greatest economy, and to hold same many times until the usual fall glut in the market is over. Sixth, the ability to convert the by-products of the orchards into profits instead of losses. Seventh, to attract by judicious advertising dealers who are interested in the buying and handling of the best class of fruit.

The outlook for the still further development of the apple industry was never more promising and bright than it is at present. Our large towns are becoming cities and our cities are increasing tremendously in population. Our chemical cold-storage houses were never more perfectly equipped or better managed than at present. These houses, in my opinion, are one of the most important adjuncts of the apple industry, for without them it would be simply impossible to extend the season of green apple supply over such a long period of time.

A few suggestions to the individual apple grower may be appropriate and helpful. Where trees in your old orchard are too closely planted cut out every other one. Remove all undesirable varieties. Begin pruning at once, but extend this operation over several years rather than try to do it all in one year. Seal all wounds with lead and oil. Wherever possible plough and cultivate the orchard; when this is not possible pasture orchard to hogs or hens. Accurate data show that best results are attained where tillage is the rule. Apply each year a reasonable dressing of stable or chemical fertilizers. Spray your trees and fruit each year. It will add fifty cents per barrel to the value of your crop. Graft and care for your native apple trees. By care and attention they may be made a source of great profit. In planting new orchards choose a few of the best varieties. Plant on the best land that is suited to apple growing that you have. Buy stock of a good nursery firm and get the best two-year-old trees obtainable. Prepare land carefully, as for any hoed crop, space trees a good distance apart, prune back severely, plant carefully, and then enjoy seeing them grow. Head back trees each year as long as the top can be reached. Spray each season when dormant with "scalecide" to control all scale insects and to cleanse and invigorate the trees. When old enough

to bear, spray for fungus and chewing insects. Pick your apples in the proper season according to varieties. Have at hand a supply of packages, either barrels, boxes, or baskets, in which to put your apples. Handle apples carefully so as to injure fruit and trees as little as possible. If not sorted in the field put them at once in a cool, dark place. Pack apples in boxes or barrels, according to grade of fruit. Never box any but the finest specimens, remembering that the Western box apples are the standards by which we shall be judged. Have neat and attractive packages. Grade and pack apples fairly and honestly. Have sorting table to work at, as it greatly lessens labor. Pack barrels thoroughly; on face end stencil plainly grade and variety. Sell according to your market, location and inclination; early selling for the average apple grower is usually the best policy. To anyone who will give careful and earnest consideration to the economic advantages which New England possesses and apply these practical and common sense suggestions in the growing and handling of the fruit, I think their point of view will soon coincide with mine that apple growing is one of the most profitable lines of agricultural efforts in New England, and that an acre of mature, well-cared-for bearing trees is the most valuable acre of land devoted to agricultural purposes in New England.

THE NEW AGRICULTURE AND ITS SIGNIFICANCE TO NEW ENGLAND.

BY G. C. SEVEY, SPRINGFIELD, MASS.

Delivered before the Society, February 19, 1910.

Today this subject is one being approached from many view points since its resourcefulness attracts the layman and the skilled public speaker alike. At the outset please understand I shall make no pretense to beautifully rounded sentences that sparkle with historic references, nor shall I attempt to please through humorous anecdotes, carefully arranged climaxes, or happy figures of speech. However, I have a message which I wish to deliver and it is to be given in the most simple, direct way, without frills or flourishes. My arguments are based on a rather extensive field of observation and knowledge of rural life that comes through practical experience and hard knocks with which a farmer's boy without funds is so fortunate as to face in his competitive battle for success and usefulness. Thus severing any impression of blue-blooded aristocracy and trusting you will understand this personal reference, I want to consider with you some phases of this new agriculture of the 20th century and its significance to New England.

Now what is this new agriculture? The equation constitutes so many factors that to answer the question in a single sentence is well-nigh impossible. But for the lack of a better summary I will say that the happy combination of science and practice, plus a redirected education equals this new agriculture. It is a matter of common knowledge that in the early days the science of agriculture was little understood. Farmers sowed their crops and were confident of a harvest. Yet the why and the whyfor of this and that condition were not understood, if indeed they were even given a thought.

Later, the Yankee characteristic to know the reason why developed a dissatisfied condition of mind and questions were asked

about why certain results followed specific conditions. This inquisitive spirit led agriculturists to experiment for themselves and compare results. Then came the establishment of the department of agriculture and in due time our agricultural colleges and experiment stations. In most cases these institutions in the several states passed through a fiery ordeal and were very indifferently supported by the citizens. Particularly were these institutions censured by the everyday farmer who classed the work of colleges and experiment stations as mere theory and absolutely of no interest or help to the everyday life of the farm. In fact it has been only a few years since these worthy institutions were greatly maligned and even today there is an occasional instance of people believing their agricultural colleges, experiment stations, and department of agriculture at Washington, are simply creations to give a lot of college professors a job.

But the rank and file of these educational institutions have proved their usefulness and are being recognized by urban and rural citizens alike as a mighty factor in the country's progress. Right here is where the new agriculture applies. At the start the pendulum swung far to the side of practice. Then followed the reverse swing to science, but what was lightly called theory. Now we have a happy combination of the two and that is where you get your new agriculture. If knowledge is power, applied knowledge is results, and we must remember results is the goal. Whatever the undertaking, be it agricultural, industrial, social or spiritual, what really counts is results. However brilliant an intellect a man may have, however highly educated, and however many rich uncles may have left him a fortune, he cannot be considered a success unless he is able to so correlate his powers as to produce tangible results. If the individual, if the horticultural society, if the state, the nation are unable to accomplish results worth while to mankind they are failures. If the farmer ignores nature's laws he cannot attain the greatest success even if he works nights and Sundays. If our institutions of learning ignore practical application of their knowledge they cannot be a complete success even though they have the combined knowledge of the new and the old world.

Yet note the wonderful possibilities within reach just the moment these forces are sympathetically combined. As yet the transforma-

tion and the amalgamation of practice and science are not complete, but the unifying process is already in progress and that is what I choose to term our new agriculture.

Along with this, and running so closely as to really constitute a part thereof, comes a redirected education. As a nation we are only beginning to realize that our system of education is a false one. For centuries the subject matter, and even the process of education, have been as thoroughly agreed upon as are the orbits of the planets. It has been taken for granted that the education for a common man is the knowledge of the three R's — reading, 'riting, and 'rithmetic. The favored few might bask in the drying sun of Latin, Greek, and the so-called arts.

Now we are beginning to learn that all this training bears no practical relation to success in actual life. The dunce at school and the boy of a few winters at the district school have become the men of keen judgment, remarkable initiative, and have the highest esteem of their communities. If the past system of schooling should assert its superiority in any direction more than another, it would be expected in the realm of the literary world. Note that the great genius, Shakespeare, had little school training; Burns and Bunyan had less; and it remained for Chaucer to cut loose from scholarship before his best work was forthcoming. Our schools have failed to touch the vital human characteristics of the soul of the child, of the man. The system has worked against human nature rather than with it. The school courses have catered to the head rather than to the heart and the hand. But this well-meaning, though ill-advised system of education, is being redirected and that is another point bearing on our new agriculture.

Various agencies are contributing to this redirected education. There are the agricultural colleges, experiment stations, federal department of agriculture, our schools, boards of agriculture, various associations representing dairying, horticulture, livestock, etc. There are our fairs, agricultural societies, boards of trade, and commercial organizations, the grange, the church, and the press. The work of our agricultural colleges has already been referred to briefly and the campaign of our own institution at Amherst shows that its applied knowledge reaches farther than the boys and girls who happen to be at the institution. Its full-fledged normal depart-

ment, summer school, short courses, farmers' weeks, graduate schools, and demonstrations on steam and electric railways, not to mention the many experiments in progress on farms in different parts of the state suggest how great a circle its usefulness includes. This extension work is specific proof of a redirected education that reaches the people and the spot.

Our schools (graded, high, and industrial) are undergoing great changes. In this connection it is interesting to note that while agriculture has been taught for one-third of a century in land grant colleges, only one agricultural high school was reported 12 years ago and only 18 high schools taught agriculture two years ago. Now there are more than 100 high schools in 17 different states, besides several thousand high schools in 23 states giving instruction in agriculture. Recent data show that agricultural instruction is given in the rural schools of 44 states; 14 states by law require that the elements of agriculture be taught in rural schools and 12 states require it in graded schools. There are 28 states that have enacted special laws permitting such instruction, while in others local authorities are free to introduce the subject. Does not this remarkable change within a half-dozen years indicate a redirected education? And is it not a factor in our new agriculture?

Then this spirit of associated science and practice, or applied knowledge, is being carried into every section of the state through various agricultural organizations like the board of agriculture, dairymen's associations, horticultural societies, poultrymen's associations, bee keepers' societies, swine and sheep breeders' associations, and agricultural societies which give annual fairs. Note that most of this work is being conducted along redirected lines. The aim is to reach the everyday farmer who has practical problems which must be solved. In many cases this applied knowledge almost has to be forced upon the farmer, so firmly rooted is the spirit of opposition to science or theory. Occasionally communities are found which have not yet felt the power of this redirected education.

None of the agencies contributing to this new order of things gives me more satisfaction than the work of boards of trade and commercial organizations. They are rapidly waking up to the fact that they and the industries they represent cannot prosper

unless agriculture prospers. Thus they are more willing to meet the farmer half way and co-operate in those things of mutual interest. You well recall the fine showing made by the Boston Chamber of Commerce last year at the time of the New England Fruit Show. It was a great inspiration to the assembled agriculturists to witness the cordiality and hospitality of the chamber of commerce. Furthermore, I think the members of the organization learned a thing or two about resources of New England soils of which they never dreamed. Boards of trade in various towns and cities are not only showing an interest in the rural development of sections upon which they draw, but they are actually encouraging members to invest money in the many semi-utilized farms.

In this great work the educating influence of the grange cannot be ignored. With nearly 30,000 members in Massachusetts, and about half a million throughout the country, the grange is a factor in promoting a "better manhood and womanhood." With the exception of a few city granges, composed almost wholly of those who believe they have no direct interest in agriculture, the thousands of meetings held are directed along the lines of this new agriculture. They are in touch with the agricultural colleges and all the later agencies of promoting an applied knowledge. One especially strong factor in the grange is the fact that the whole family has the privilege of joining, and as you attend some of these neighborly gatherings which are dominated by a spirit of good will and progress, you realize better than words can express the power that this organization may exert in the redirected education of a new agriculture.

Then again, note the possibility of the rural church in this new order of usefulness. True, the problem of the country church is a complex one with its overly churched communities and inadequately paid ministers. Yet there are those shining examples that show what a power the church can have upon rural life. Such a one is at New Lenox, Massachusetts, where the minister has fitted up a large room for members of his congregation and towns-people to gather every other week and listen to addresses and discussions concerning problems local to the section. Good speakers are secured; and so far agriculture has occupied a conspicuous position as several of the professors from the agricultural college have been called upon to give lectures. Through this movement the towns-people have

become interested, first in the work in question, then in the kind-hearted minister, and finally in the church itself. In this way many people are reached by the church in a spiritual way who would otherwise not be accounted for. Another example of this class of work exists at Ludlow, and another at Middleboro. These are ones with which I have happened to come in personal contact and there are dozens of others. The point I emphasize is that the church, heretofore supposed to have had only the spiritual welfare of the world at heart, is now recognizing that through a redirected education it benefits not only itself but rural life as well. Many of these church pastors are entering into the daily life of members, becoming interested in things in which the members are interested, and thus being able to appeal to the human side of their lives. Do you note the close relation of this very movement to a redirected education in our schools which aims to first understand the child and make available his human characteristics rather than lay down Puritanic rules and regulations which the nature of a child has no appreciation of or sympathy with.

Finally, there is the press working in sympathy with this redirected education. It includes not only the agricultural press but the reputable Metropolitan press as well. Editors and publishers are very quick to sense the public pulse and as a rule are men of high character, ambition, and resourcefulness. By a word here and there, and editorials carefully directed, they are able to lead their readers along the paths of high ideals. We all remember when the farmer was freely caricatured as a hayseed and rural life likened to darkest Africa. Yet within a half-dozen years there has been a remarkable change of heart in this respect and with few exceptions you will find the press recognizing agriculture as an art and a dignified calling. The agricultural press would naturally be expected to foster high ideals of rural life and it is fortunate the Metropolitan press is giving such loyal support.

Therefore, we have all these agencies, not to mention others, contributing toward a redirected education, which among other things is teaching the dignity of labor and of agriculture. In the past children were taught that farming was about the lowest occupation on earth. The rural schools and even the fathers and mothers themselves perpetuated that idea. The brightest children

were picked out to be doctors, lawyers, statesmen, bankers, merchants, etc., and those who were less brilliant were selected to stay at home and help on the farm. Those designed for the city were given special advantages, father and mother working overtime and denying themselves to push forward the hopeful son or daughter. In many cases the advantages were actually snatched away from the less brilliant sons and given the brilliant.

As time went on those who went to the city, in most cases made a success and were the ones which contributed so largely to the development of the industrial world. The surprising fact is that the fathers and mothers were keenly disappointed to think their city boys succeeded so well when the sons who remained at home did nothing remarkable. It is another case of false standards of education and a redirected education is reminding these farmers and their wives that the best blood was sent to the city and that in the future a part of it should be kept at home. The farmer who has thoroughbred stock and who gives it extra advantages expects more from it than from inferior stock which has been stinted and poorly fed. So are they realizing that there is a variation in children and a similar variation in advantages given them. Particularly in the West where this redirected education along rural lines is so marked, will be found examples of what rural life offers to young men and women with brains. Some of the brightest sons are remaining on the farm and the accomplished daughters are marrying farmers. They have ideal homes fitted with all the conveniences and pleasure-giving appurtenances. These same sons are banking more money annually than 90% of the people in our cities today. They are driving automobiles, taking occasional trips in neighboring states, and making the most of life. This is a redirected education. Have I said enough to convince you that there is a strong movement toward a redirected education which in turn means a new agriculture.

The second phase of the subject is What significance this new agriculture has to New England. In a word it means the realization and appreciation of New England resources; also the supremacy of optimism as opposed to conservatism. This one matter of New England's resources is broad enough to include an address of double the time allotted the speaker. If time permitted I would

like to tell you about the productiveness of New England soils as compared with other sections of the country. How this soil is not dead but is teeming with countless millions of bacteria, anxious to produce crops for the farmer if only given an opportunity through improved methods of tillage, crop rotation, soiling crops, and judicious use of lime and fertilizers. I would like to speak in detail of the unusual opportunities in practically every town in New England. I can show you how New England beats the country in the production of crops and the income per acre from our farms. For instance, the average yield of corn in Ohio, Indiana, Illinois, and Iowa is only 37 bushels to the acre, valued at $14.09. Connecticut's average yield is 40 bushels, Massachusetts 37, with a value of $27.54 per acre for the former, and $25.26 for the latter. Notice the return for the New England product is nearly double that of the middle western corn states. Furthermore, the average income per acre of improved land on Connecticut farms is $26.50, Rhode Island $33.80, Massachusetts $32.74. The average for Ohio, Indiana, Illinois, and Iowa is only $12.58, less than half as much as for the New England states.

I would like to consider some specific cases of gratifying returns from New England produce. I would speak of roasters selling at $4 each, hothouse lambs at $10 to $15 each, strawberry returns of $200 to $1500 an acre, asparagus at $100 to $600 an acre, onions at $1000 to $1500 an acre, many of the truck or market garden crops at $600 to $1500 an acre. Large fruits such as apples and peaches at $500 to $1000 an acre, tobacco at $200 to $800, not to mention the profits of other special crops, livestock enterprises, and general line of farm activities. These figures are not exaggerated for I have personally visited farms and have friends who are securing the returns indicated. I could cite dozens of instances where enterprising men have bought places, paid for them, made a living, given their children an education, and actually saved money besides. Compare these figures with some of the western receipts and note the superior results of New England. When I visited homepeople back in Michigan they can hardly credit the stories of New England possibilities, which I am not bashful about relating. Remember, too, the price of farm and fruit lands in New England as compared with that in the West. In the latter section prices have advanced

from the early figure of $50 and $75 an acre to $100, $150, and $200. Here in New England thousands of acres of good fruit land are available at $10 to $25 an acre. In many cases buildings are found on these farms which are actually worth the price paid for the farm. Of course nearer the large cities for the intensive market garden crops land values run to $1000 or more an acre, but the fact that the owners are making money shows that a fine dividend can be declared on New England lands at an exceedingly high valuation.

You are familiar with the strong argument of nearby markets for the New England farmer and the overwhelming percentage of consumers as compared with producers. You are also familiar with the superior transportation facilities, including good roads and a network of steam and electric railways which are not only carrying passengers but produce of the farm as well. You know about the educational advantages, including schools, libraries, reading circles, women's clubs, colleges, etc. New England is noted for its culture and superior advantages in the way of our higher education. There are different phases of all these subjects which I would like to consider with you but must hasten on.

If there is any one factor which is sure to revivify New England more than another it is the development of the spirit of optimism. We have kept within our conservative shell so long that it is not surprising rural sections have suffered. Conservatism is all right but you can have too much of a good thing. We have been living too much to ourselves and covering our lights with a half-bushel. If the truth about New England resources could only be known by the country at large you would see as big a stampede for the East as there was to the West back in '48 and '49. Resolutions recently adopted by the Pilgrim Publicity association of Boston express my sentiments so accurately that I desire to repeat them. The code includes the following: "I believe in the tremendous transforming power of optimism; I believe that it is lack of faith which checks the development of individuals, associations and sections; that skepticism is the only thing which stands between New England and her great destiny, and that when pessimism is transformed to optimism New England will again take her right place in the vanguard of industrial progress.

"Therefore, I am resolved that I will avoid and help others to

escape from the deadening and demoralizing rut of criticism, skepticism, and inertia. That I will be a booster, not a knocker, and that I will neglect no opportunity to show my faith in the future of New England and to labor unceasingly for its fulfillment."

That is the spirit which quickeneth; and will repopulate New England's hills and valleys with ambitious, enterprising and cultured people. History records that the great tide of population has ever been westward. A thousand years before Christ it started on the shores of the Mediterranean, overflowed Rome and Europe, and centuries later reached the new world in a few broken ripples. Then, after centuries devoted to gaining strength, the tide again set westward and finally has broken on the shores of the Pacific. Whither now can it go? If this human wave crosses the broad Pacific it will be face to face with the millions of the Orient. There can be but one result, as Pres. W. C. Brown of the New York Central lines so well said in his recent address in New York, from whom I quote: "The advance column of this great westward moving procession of the centuries has encircled the globe. Soon a great human undertow must set back toward the east and the westward tide will settle in turbulent, dangerous eddies and whirlpools about the great centers of population." Therefore, I say it is the psychological moment for New England to make known her resources, show her optimistic spirit, and confidence in our lands, in our industries and our people. This is a factor of significance to New England agriculture.

Associated closely with this influence of optimism and confidence comes the all important matter of capital. The Boston Chamber of Commerce at the time of the fruit show prepared a very elaborate folder reflecting credit to rural New England. This was highly complimented, except one phase, which was the ignoring of the necessity of capital. J. H. Hale, the peach king of America, was quick to see the mistake and declared that all of these rural resources and possibilities cannot be fully realized upon unless there is capital to develop them. The business man knows he cannot go far without capital, either in the way of available funds or confidence. It is just as important, if not more so, for the farmer, for in many cases the rural dweller sees opportunities which he simply cannot improve owing to lack of funds. What we want is more investment

of New England money in New England resources rather than sending it into the great northwest to develop irrigated fruit lands, "dividendless" mining schemes, or into southern rubber plantations. I claim that in this new order of things that the desired capital will be forthcoming, for after the conditions are known the business man will prefer to invest his money at home as a hard-headed business principle. This then is another important factor in the significance of the new agriculture to New England.

Now is there anything to show that the era of new agriculture is dawning and that it has significance to us? If what I have been saying is founded on facts one would expect a few straws in the current showing its direction. Any man who is a reasonably close observer has not failed to note the change which is so rapidly taking place. Many of these are local but there are some which are interstate. For instance, you remember the Better Farming Special Train which toured Maine, New Hampshire, Vermont, Massachusetts, and Connecticut some four years ago. The railroad people supplied the train and equipment, and the colleges and agricultural organizations, the speakers. The itinerary covered more than a month and nearly 100,000 people visited the train as it stopped for one to two hours on a siding at local points. Following that closely came the Conference of New England Governors with which you are familiar and which developed a commendable get-together spirit. Then came the New England Fruit Show which has revived horticultural interests in New England in a remarkable way. It is admitted on all hands that it was the most successful horticultural event ever held in the East. Plans are now well in hand for a New England corn exposition and a premium list is on the press which will provide about $7000 for the winners. Notice that these are New England events emphasizing the resources of not one, but all of the six New England states. These events are published widely and cannot fail to draw attention to this quarter of the globe. Proof that it is so is shown by the actual inquiries about New England industries and farms. I have recently communicated with boards of agriculture, railroads, commercial organizations, and real estate dealers, with an effort to learn what renewed interest, if any, is manifest. In a word the verdict is that the inquiry for New England property is more than double what it was four or five years ago. For instance,

O. L. Martin, commissioner of Vermont agriculture, says he has received 85 inquiries for farm property within six months, with 50 of them outside of New England, and a dozen are from west of the Mississippi, and as many more south of the Mason and Dixon line. W. T. Billings of the Boston & Maine railroad says that inquiries for New England real estate, particularly farms, originating from points west of Chicago, or south of New York City during the past six months number 56. This does not include the dozens of inquiries made to the department regarding New England products, opportunities, and general information.

T. F. Mahoney, manager of the New England real estate company, says: "The demand for New England farms today is ten times greater than in years gone by. I can safely say not a day has gone by in the past six months but we received anywhere from five to fifteen inquiries about New England farms." One of the most extensive real estate concerns doing business in New England is the E. A. Strout company, and Pres. Strout says: "Our sales of New England farms to men from west of Pennsylvania were double in 1908 what they were in 1907, and for 1909 our sales were three times what they were in 1907. The best part of this new movement is that these western men are young, and usually have a capital of several thousand dollars. They are experienced and are buying large farms. The New England farmer for years has brought his children up to look down upon farming as an occupation and he and his wife have scraped and saved to send John to college to become a one-horse doctor, a seedy lawyer, or a mellow-headed clergyman. Their daughter was sent to normal school or college. She has married away from the farm for her mother brought her up to look higher than a farmer for a husband. In the West farming for years has been a respected business. Farmers brought their sons up to become farmers and encouraged their daughters to marry farmers. Today what is the result? In New England there are more good fertile farms than there are farmers to farm them. In the West there are many more farmers than there are farms. New England needs those surplus farmers. Those western farmers need New England's idle farms. The time is ripe for action. Hundreds of thousands of western farmers move on to cheaper lands every year. They are going now to

Canada, to Texas, and a dozen other western points. They will come to New England if we will only tell them the truth about our soils, our crops, our markets, and our people.

These, then, are some of the actual facts going to prove that the undertow which President Brown so aptly applies, is setting rapidly toward New England. Understand, I do not argue there are no problems yet to solve, or that New England's future is to be one long sweet song. We have problems today, and there will be plenty of others for the future. Just now the labor question is vexing. Then there is the satisfactory assimilation of immigrants which are said to equal 2,000,000 annually, counting the natural increase. I am not so sure but the matter of labor and immigration are two factors which will eventually be amalgamated to the advantage of both, and two of our problems largely solved.

Just now we are in the throes of meat boycotts owing to high prices. This simply means that the producer and the consumer are too far apart. The future must bring them closer together. Right here is a significant factor of a new agriculture, and that is a tendency of the consumer to recognize the problems of the producer, and the producer to recognize the problems of the consumer. There is a growing desire of each class to get nearer the other while in former days the feeling has been quite the reverse. Producers are learning they must give consumers what they want if they are to get best results and supply it when wanted. Consumers on the other hand see that this catering to their special wants is likely to cost a little more. In other words, I can see developing a spirit of take and give, which is a recognized principle with all business men who have dealings with their fellow-men. There is a pronounced recognition of the symbiotic relation between the producer and the consumer. An excellent example of such a relation in the plant world is the bacteria that live on the roots of the legume family, like clover. The clover plant supports these bacterial organisms and in return receives nitrogen which these tubercles gather from the air and which the clover plant needs for its success. Then you have heard about ants which take care of plant lice or aphides through the winter, and in return gather exuding honey dew. In the same way this new agriculture gives the soil air, light, fertility; and the soil in return gives bountiful crops; both factors

in the equation profiting by the exchange, a true symbiotic condition. The same principle well applies in the case of the great masses of producers and consumers. Each is essential to the other. As Longfellow says:

"As unto the bow the cord is,
So unto man is woman.
Though she bends him, she obeys him,
Though she draws him, she follows,
Useless each without the other."

This getting-together of the producer and the consumer will see much associated effort, or as is frequently termed co-operation. Again this one point of co-operation among farmers, business men, corporations, and states, is sufficiently fertile for an address by itself. In a word, New England is just on the threshold of great developments along the lines of co-operation. The get-together spirit or associated effort is in the very air. It is more highly developed in the west than in the east, but New England is rapidly catching on and had I the time I could give you the specific movements, particularly along rural lines, which show what is being done in each of the New England states.

Our system of doing business is the most extravagant on the face of the globe. Why should consumers pay 9 cents a quart for milk when the producers receive only 4, or at the most 4½ cents for the same amount? Why should meats for which the producer receives 4 to 10 cents cost the consumer 15 to 40 cents? Why should eggs for which the farmer receives 16 cents go into cold storage and be peddled out as the fresh product to consumers at 40 cents? I feel that part of this is due to the unreasonably large dividends of middlemen. However, the system of doing business accounts for no small portion. For instance, in peddling milk you will see anywhere from two to a dozen peddlers driving over the same route picking up a customer here and there. Then again with meats and groceries, the consumer will order 25 cents worth and expect the storekeeper to deliver the goods with an expensive outfit including man, horse, wagon, etc. All these things cost money, and both the producer and the consumer eventually foot the bill. If the system is not wrong, it is certainly extravagant. These are ques-

tions which the future will consider and which our redirected education and optimistic spirit of progress will solve. Denmark was once one of the poorest nations on the continent but through associated effort and the remarkable development of co-operative associations the country has become one of the richest. So will we become prosperous as we utilize the powers of cooperation.

What has all this to do with the Massachusetts Horticultural Society? I maintain it has a great deal. The society is to share in this new agriculture which in itself is significant to New England progress. I believe your organization will help push along this redirected education, this combination of science and practice, and help to self help. Especially do I urge that you get in touch with the boys and girls and the young people. There is where the most telling work can be perfected. Perhaps you are familiar with what some cities are doing in the way of school gardens and organization of boys' and girls' clubs. The neighboring city of Worcester is developing one of the most commendable enterprises in the way of training the young which has ever come to my attention. I refer to the Garden City idea with which perhaps you are familiar. From most unruly and wayward children they are developing model citizens. Those in charge have not only given the boys and girls a garden each but they are developing the civic idea. These gardens are located in what was formerly an unsightly spot of the city. The boys and girls elect their city officers, including the mayor, alderman, councilmen, policemen, etc. Instead of the unruly and bothersome individuals they formerly were, they are learning to appreciate law and order, and they themselves are the ones to lift the ideals higher.

I know of no more worthy work which the Massachusetts Horticultural Society could do than to make possible some such enterprise for the youth of Boston. A report from the department of agriculture at Washington early this year says that information from 395 counties in 28 states, in which boys' and girls' agricultural clubs were organized, showed a membership above 144,000. New York has about 75,000 members, Nebraska 25,000 and one county in Pennsylvania 2000. Think of the tremendous influence on future agriculture that this proper training of so many children means. It is the sort of redirected education for which I plead and

which I sincerely hope your organization will foster in every possible way.

With the best of financial backing the Massachusetts Horticultural Society has an unusual obligation. It has been given many talents and much will be expected. May I suggest too that in your campaign for horticultural improvement that you place increasing emphasis on the practical everyday side of the matter. The millionaire horticulturist is not to be ignored, but after all he is able to take care of himself and the real educational and most valuable work to mankind of this association can be through encouragement of the man who is not so rich in this world's goods and who must depend on the profits of his daily toil for a living. If advisable, I would like to see this extension work go back into the homes of the hill towns in the central and even western portions of the state. Your society carries the name of the state and I believe the policy in the past has been to restrict activities to eastern sections. It is not for me to object to such a policy and I only want to remind you that there is worlds of work out in these sections of the state waiting to be done. Were such a campaign decided upon I would be very glad to go into specific details associated therewith. Following the report of the country life commission, Ex-President Roosevelt said: "There are three main directions in which farmers can help themselves: Better farming, better business, and better living on the farm." Anything which this organization can do to promote such progress will be much to its credit. In so far as you sense your responsibilities and help humanity to help itself, so far will you prosper. The home is the basis of all progress and if you can reach it you reach a mighty factor of the nation's prosperity. By thus bringing success to the people you inevitably bring success to your own organization. Combining your efforts with those of other organizations, colleges, schools, individuals, and modifying agencies, is there any doubt about a redirected education; about a greater New England; or about the new agriculture; with particular significance to each and every New England state.

HORTICULTURE AS A PROFESSION FOR WOMEN.

BY MISS LAURA BLANCHARD DAWSON, JAMAICA PLAIN, MASS.

Given before the Society, March 5, 1910.

The subject of Horticulture as a profession for women has been for some years past a topic of widespread interest both in Europe and America. Now, while Horticulture means primarily the culture and care of a garden, or of the plants for a garden, I am using the word in its broadest sense to include floriculture, fruit culture, vegetable culture, and the culture of plants for landscape gardening. I shall stretch the point even a little further and include the practice of landscape gardening itself.

Even back in Colonial days women did much along horticultural lines. Mr. Robert Manning, in his History of the Massachusetts Horticultural Society, tells us that the first person who cultivated a garden on a large scale in Charleston, South Carolina, was Mrs. Lamboll. This was about the middle of the eighteenth century, at which time, Mr. Manning goes on to say, "her garden was richly stored with flowers and other curiosities of Nature, as well as useful vegetables. She was followed by Mrs. Martha Logan who when seventy years old wrote a treatise on gardening called the Gardener's Kalendar, which was published after her death in 1779, and as late as 1808, regulated the practice of gardening in and near Charleston. She was a great florist and uncommonly fond of a garden." The letters of Abigail Adams, the wife of the second President of the United States, show us that about this time she did much to advance the interest in Horticulture by the beautiful gardens which she so successfully managed. Since then from time to time women have not only contributed substantially to the practical side but also to the literature of Horticulture. In 1843 an American edition of Mrs. Loudon's works, "Gardening for Ladies" and "Companion to the Flower Garden," were published by A. J.

Downing, who hoped "that the dissemination in this country of works like the present might increase among our own fair countrywomen the taste for these delightful occupations in the open air, which are so conducive to their own health and to the beauty and interest of our homes." This was the first work of a practical nature directed to women and seems to have accomplished much towards realizing Mr. Downing's hope. Previous to 1880 we find on the list of honorary members of this Society the names of six women, and since that time in constantly increasing numbers women have accomplished much of merit and value along horticultural lines.

Now that I have touched upon what women have done for Horticulture, let us come to the more immediate object of this discussion. What can Horticulture do for women? What is the chance of women entering its ranks professionally? Is it a field in which they can earn a substantial livelihood? I believe it is. There are many phases of it for which women are peculiarly adapted, just as there are phases of it that are decidedly too great a tax on woman's physical endurance. For some time there has been a movement on foot both in this country and abroad toward the undertaking by women of Horticulture on a money-making or professional basis. Although this has not been done widely in the United States until quite recently, in Europe, particularly in Germany and in England, the opening of horticultural schools for women some fifteen or twenty years ago has given a great many women and young girls the opportunity for efficient study in these subjects.

In Germany there are five horticultural schools at the present date, all of them conducted by women and each one furnishing a two years' course. The oldest of these, near Berlin, was established twenty years ago, the rest, with one exception, have been established by pupils of this school. Women are also admitted to the course at the Royal Horticultural School but are not allowed to pass the State examinations. The best paid positions are those of horticultural teachers at the sanatoriums where horticultural work is a part of the cure. There are other positions open, as teachers of gardening in household schools in the country, in the State schools for girls and in the large private schools for boys. Women in Germany

also take up the positions as gardeners on the large estates of landlords. This is not so well-liked, because the woman usually is not taken into the circle of the noble family and at the same time has birth and education which makes her far above the other people with whom she comes in contact. The daughters of these landlords often take up gardening courses and return from their studies to take charge of their fathers' estates. A few months ago the German Government even sent a young woman to German Poland to instruct some of the German emigrant families there in horticulture and farming. This is of course done to strengthen the position of the German element in the new possessions. A few women have bought estates of their own and started fruit farms or large florist establishments, but these are much in the minority. In England, too, there are two very good horticultural schools exclusively for women. The school at Swanley in Kent has from sixty to eighty pupils each year, and turns out many women well qualified to take positions as gardeners, poultry raisers, et cetera. For some years women were admitted also to Kew Gardens as students, but the authorities there have decided that the training at Kew is unsuitable for women, maintaining that one cannot expect a woman of culture and refinement to be able to push a barrow and spade and fork by the side of a man for eleven hours a day unless she is physically as strong as the man, and that is very rare. This is the cause of the dissension in England on the subject of the "lady gardener," who has been much discussed and dissected. It is this position of gardener, a position which requires much and hard manual labor, to which the woman is not physically equal. There is but one woman out of all those who have studied at Kew who is at present holding such a position in England, and she is possessed of almost masculine strength. But there are other positions closely allied to that of gardener, in which woman can with success make use of her knowledge and love of Horticulture. Almost every city finds its successful woman florist. Not far from Boston is a woman who has made a pronounced success for many years of a small florist trade, with a specialty of wedding, funeral, and table decorations, for which she raises her own flowers. Several women of whom I know have done this. Another woman has had splendid good luck in growing carnations for the wholesale market. A

woman on the Western coast who had a small range of greenhouses in which she raised the usual florist line of goods for some years made large additional profits by raising tomatoes, at a time of year when her houses were empty of flowers, and shipping them while almost green to Alaska. Still another woman earns a good salary by having charge of the shop of a large retail florist establishment. She keeps thoroughly posted on the names and varieties not only of the ordinary flowers but of all the new varieties, and her employer says "knows how to use them, too." A similar position is held by a woman who runs the office departments, keeps in touch with new varieties, writes them up for trade papers, etc., in a large wholesale establishment, the rest of which is run by the men of her family. One runs a market garden with success. Three women have made splendid reputations as landscape architects.

One of the most important and at the same time pleasing of horticultural pursuits is the growing of flowers — floriculture — which includes both the retail and wholesale florist business. The retail florist business seems to be one to which women who have a love of flowers can readily adapt themselves. The handling of flowers for the retail trade and the designing and making up of bouquets, wreaths, etc., and decorating, seem for a woman of taste not only a pleasing but a profitable business. Of course with this if one goes into business for herself she must combine executive ability. For retail work one can gain knowledge by entering a first class establishment and working up, and although difficult to find in the East, there are well established firms in Baltimore which employ women, while in the Middle West throughout Missouri, Indiana, and Illinois, even in establishments conducted by men, it is quite the custom to employ women to do the above mentioned things. One man frankly told me that for these things, i. e., for making up and decorating, he preferred to employ women, saying that he found that as a general rule they had more taste and that the results were more artistic than when the work was done by men. The store of this particular man is managed by a woman.

The wholesale florist business is much more intricate and difficult and requires a greater knowledge and greater executive ability, particularly if one desires to combine growing and selling. For the growing one must have had a practical training, even to make a

beginning, for, as one woman has very truly expressed it, there are few lines of study that require closer application and higher gifts of observation, to say nothing of actual scientific knowledge, than the growing of plants under glass. This necessitates constant vigilance both night and day. Of course one can always hire men to do the heaviest and most wearing work, but even then a woman should consider very carefully before risking her capital in a large florist's plant. A great many of the women who are now in the florist's business in this country have either grown up in the business or have fallen heir to it upon the death of husband or brother. Quite as often we find a woman who is the mainstay of a business, but whose identity is merged in that of the men of her family. A few have taken it up because of ill health, but this is not advisable from the standpoint of financial success. For with success in view we need for this business not only good health but a tremendous reserve energy and vital force.

Fruit culture seems to offer success to women without the mental and physical drag upon her strength that is attendant upon the complicated details of growing flowers under glass. With a suitable piece of land this branch of Horticulture can be made not only pleasing but profitable. In the far West, particularly, there have been marked successes among the women who have raised orchard fruits, as well as small fruits. I am advised that it has also proved profitable to have in connection with the raising of fruit a system wherein fruit can be put up or canned ready for sale.

Still another branch of Horticulture in which women have succeeded in making a livelihood is vegetable culture, the most common form of which is market gardening. Here in New England there are one or two women who have excelled in this. This is one of the practical lines which is rather simple and extremely interesting and remunerative, but in connection with which there is much back-breaking work, and very long hours, for the marketing of vegetables requires an early start in the morning before the day's work begins. Fancy vegetables, or those out of season, from the greenhouse, are always in demand and generally command good prices.

Then we have the growing of plants for landscape gardening, which is, broadly speaking, the nursery business. This is much

too difficult an undertaking for the ordinary woman to assume. The responsibilities, the host of widely differing problems to be solved, the traveling about and actual presence upon the spot in all sorts of weather, the directing of employees, are but a few of the conditions which make plain the necessity of possessing unusual ability both physical and mental. Only the woman who would succeed in any undertaking should attempt this. I know one woman in the West at the present time who is the head of a large nursery business and whose identity is entirely merged in that of her husband and brother. Of course in the herbaceous department of the nursery business we have a more pleasing and less complicated line of work. This is profitable and well within a woman's province.

So far we have been dealing with the commercial side of Horticulture. We have still the professional side to consider, and that is landscape gardening. This again combines a wide practical knowledge of trees and shrubs and herbaceous plants with the theory of design both as applicable to the garden and grounds, and of course a well-founded knowledge of architecture, drainage, engineering, and a keen sense of color and form. There are in various parts of this country several eminently successful women landscape architects. Miss Beatrix Jones of New York, who is one of the best known, has already written in a concise and well-balanced manner as to the advisability of women entering her profession. Through the courtesy of Miss Jones and of the editors of a book shortly to be published on Woman's Work, I am permitted to quote from these advance sheets:

"It is a profession which no woman should attempt who is not above rather than below the average of physical strength and endurance, as the work swings from one extreme to another; sometimes meaning eight hours or more office work; making plans, drawing up specifications, and draughting, and this continued for several days, followed by the entire change which field work means. This not infrequently involves a week's continuous work in which the average day, including time spent in traveling, is twelve hours or over. The engagements for field work must sometimes be made weeks ahead in the busy season and must be kept irrespective of weather or bodily condition, for the reason that in such work the meeting must be carefully arranged beforehand in order to be

adjusted to the engagements of the client, the contractor, the engineer, and the landscape gardener.

"No one should attempt the profession who has not by nature a quality which corresponds to the musician's ear for music, that is, the power to perceive and assimilate the characteristics of landscape: in other words, no one can be a landscape gardener who has not an eye any more than a musician can be made from a person who has no ear. This means the appreciation of the texture as well as the colour of the landscape, the peculiar quality of each individual place and its adaptation to specific treatment; for it cannot be too strongly borne in mind that landscape gardening is the profession of a painter built on the substructure of that of an engineer.

"If after consideration the young woman decides that she wishes to become a landscape gardener, a thorough preparation should follow this determination. The actual studying should be supplemented by a journey to Europe, as essential to the landscape gardener as it is to the architect, and for the same reason that it tends to form and educate the eye and train it to perceive what has been done with the opportunity given. At present the work of women in the profession consists almost entirely of what may be called the domestic branch. By this is meant the laying out and management of private places as opposed to public parks or land developments or town planning. The landscape gardener's equipment must consist of a sufficient knowledge of engineering to read and comprehend a survey and to detect any errors, which means of course the capability to make a survey, however halting and laborious the effort. The drainage of land must be well understood, as well as the various methods of road construction and the ability to calculate the grading cross sections and the quantity of soil to be removed. In the architectural department the landscape gardener must know enough of construction to build proper retaining walls and terraces, balustrades, steps, summer houses, etc., suited to the architecture of the house and the general character of the country.

"The technique of the planting is one of the most important parts of the landscape gardener's education, and here is where the instinctive appreciation of the appropriate cannot be dispensed with. A wide familiarity with the growth, needs, and expression of the

trees, shrubs, and herbs is required to give the landscape artist the palette which is needed to paint the open air picture. Landscape gardening is an exact profession. No mental slovenliness can be tolerated. Specifications must be accurately made out, plant names properly spelled, and the necessarily complicated accounts carefully kept."

This profession is one of luxury and even more dependent upon the prosperity of the country than the florist's business. Miss Jones has said that women are restricted more or less to the domestic branch of landscape gardening. In this restricted branch the flower garden itself is one in the making of which women can paint a picture of great charm and harmony which is an expression of the peculiar sympathy which exists between womankind and flowers. The most charming garden which I ever saw was designed and carried out by a princess who is also a sculptor of merit. In this garden one feels the touch of the woman and the princess.

It has always seemed to me that there should be an opening for women as consulting gardeners. In small towns often there are one or two gardeners, more or less inexperienced, who go for one or two days each week to the small place, where there is not enough work to require a regular gardener all the time. A well-informed person coming in and superintending the work of such inexperienced men results in a much more satisfactory looking place, and is quite within a woman's sphere.

If one is fond of children and combines a practical knowledge with theoretical teaching, a very acceptable departure is the teaching and management of school gardens. There has been a general movement throughout the country in this direction and much has been accomplished both by establishing in cities garden plots for children who would otherwise have no opportunity of getting so close to Nature, and by teaching country children many things which will direct their interest toward their home gardens which otherwise they take for granted and pay little attention to. It has the added value, of course, of teaching the children a great deal about Nature and keeping them occupied in a healthful and instructive way. This work, while it requires a great deal of tact and knowledge of children, to say nothing of an ability to teach, is a healthful, attractive, and remunerative occupation which does not

involve too great a tax upon physical strength and in which capital is not a requisite. While school gardening has already spread throughout many of the principal cities and towns in this part of the country, there is still room for its development in each city or municipality in which it does not already exist.

Teaching of Horticulture and writing on allied subjects form a large part of what women can do in the way of earning a living from their knowledge of horticultural subjects. The latter hitherto has been one of the means by which woman has contributed most to Horticulture. This is a very important branch, for it is through the literature on the subject that the interest of the general public is aroused and the future generations will get the greatest benefit of what has already been accomplished.

As to the modes of studying these various phases of Horticulture, as I have already mentioned, it often happens that a young woman has been brought up in the business. In that case she has little need of going to a school to perfect her knowledge along her chosen line. As there is no training, particularly in the raising of flowers, fruits, and vegetables, so valuable as the training one gets from the continued practical work of helping others of more mature experience and competence. There are, however, horticultural schools. All the State agricultural colleges, I believe, open their doors to women, and statistics show that a few women enter each of these colleges every year. In the far West, at any rate, at the Washington State College, at Pullman, there are more women in proportion than in the more Eastern colleges. In the East there are private horticultural schools where one may obtain knowledge along these lines. One of these is Lowthorpe, the School at Groton, Massachusetts, which, however, pays more attention to its landscape classes and to the side of Horticulture which bears upon the landscape values, than it does to commercial floriculture, although that, too, receives some attention. Since the Massachusetts Institute of Technology has eliminated its special course in landscape architecture the Lowthorpe School is the only school in the Eastern States where women may study landscape gardening to a full extent. A school of Horticulture for women is about to be opened at Cheltenham near Philadelphia. This school aims to give more attention to Horticulture than to landscape work, and includes in its cur-

riculum poultry raising, bee culture, dairying, and in fact follows closely the line of study of the English horticultural schools. There are courses both of Horticulture and of landscape gardening at Wellesley and Smith Colleges, but these are open only to the students of these institutions. Each of the courses is a year's course, the Wellesley course paying greater attention to landscape work than does that at Smith College, where the aim is to give the student a good foundation in Horticulture and a fund of knowledge from which to draw in the superintending of her own estates.

There is, undoubtedly, for the energetic woman with a taste and liking for this kind of work, an opening in this country. For those who are in pursuit of commercial horticulture, such as florist's work, fruit and vegetable raising, the opportunities seem rather greater in the West, particularly in the far West, for there Horticulture has moved along with great strides and it is a country which is still growing rapidly and therefore offers more to the early comer. The climate and the soil conditions also assist materially. The private estates in the West are still in such a rough state that the demand for landscape gardening is very slight, although already it begins to look as if that occupation would become profitable there within a few years. At the present time there is much more of an opening in this profession and less prejudice against the practice of it by women than in the Eastern States. If a few energetic women should go West and "talk it up" it would be profitable to them and open the doors to others who might come in a more practical capacity. One woman of my acquaintance has been doing this in Portland, Oregon, but she feels that as far as landscape work is concerned the time is not quite ripe there and has recently gone to try her luck in California.

Although I have spoken already of this, do not forget that no woman should undertake any of these practical branches of Horticulture unless she has good health, business ability, and some capital with which to start. To quote again from Mr. Robert Manning's History of this Society,— "Horticulture is the perfection of Agriculture and as population increases and with it the necessity for more careful cultivation, we may expect that all the operations of Agriculture will ultimately be performed with the precision, nicety, and refinement of Horticulture until the whole world shall

become a garden." What more fitting than that woman while deriving profit from Horticulture should be assisting in this making of the whole world into a garden?

Discussion.

Robert Cameron said that at the Kew Gardens women had been received during the last fifteen years for instruction in practical greenhouse work with good results. They work here along with the men but he knew of no place in this country where such experience could be had. He thought too much attention was given to landscape work. He gave several instances of women in the vicinity of Boston who had made a success in floricultural work in the growing of plants and flowers as well as in finding a profitable market for them.

Duncan Finlayson remarked that in Europe more women are employed in florists' stores than is the custom in this country, in fact nearly all the florists employ women to arrange flowers in bouquets and to perform other floral work.

William N. Craig said he thought it strange so few women were found in our florists' establishments, a work for which they were peculiarly fitted. He thought there was not much of a field for women in gardening, for it was too hard work for them. Their best field was in the flower shops and also in such greenhouse employment as the growing of violets and carnations rather than in outside work. In his opinion there was not much of a field in America for women's work in horticulture except in the florists' stores and in some features of landscape gardening.

Miss Dawson said she had in mind the possibility of women finding suitable and profitable employment in directing the management of small estates and gardens in the vicinity of their own homes. The ordinary gardeners usually employed on such places lacked the taste and knowledge required to bring about the best results and often spoiled what would be otherwise an attractive place. While a woman gardener could not do the hard practical work she could direct such operations as pruning and planting to advantage by reason of her superior knowledge of the character of the individual plant or shrub.

As a man specializes in these days in certain lines of horticultural work such as spraying, etc., so a woman could find opportunities for congenial employment in gardening work suitable for her.

Miss Dawson said she thought the reason for the prejudice against woman in horticulture arose from the feeling that she was not physically adapted to the work.

William P. Rich remarked that there were abundant opportunities for women in our suburban towns who were interested in floriculture and who were skilful in the cultivation of flowers to add materially to their income by means of their gardens. He related an instance that had come to his attention in illustration of this statement. A woman who was very fond of flowers had a garden in a neighboring town that attracted so much notice that those walking or riding by were accustomed to stop and admire it. To these visitors she often presented bunches of the flowers and soon they came to her to buy them, although at first she had not thought of selling them. These sales, very small at first, have gradually increased until last year they amounted to $270.00, and she has now built a small greenhouse for the further extension of the business side of the work, and in a few years will have undoubtedly established a very good business.

This same thing can be done in many other localities by those similarly situated who have a love for horticultural pursuits.

LILIES FOR THE HOME GARDEN.

BY E. S. MILLER, WADING RIVER, N. Y.

Delivered before the Society, with stereopticon illustrations, March 12, 1910.

The lily has been given us in song and story for three thousand years. Solomon sang of its grace and loveliness. Other writers in the Old and New Testaments have mentioned its beauty. Poets have sung of its worth and loveliness down to the present time. We have this mythological account of its origin: "Jupiter wished to make his boy Hercules (born of a mortal) one of the gods; so he snatched him from the bosom of his earthly mother, Alcmena, and bore him to the breast of the godlike Juno. The milk is spilled from the full-mouthed boy as he traverses the sky (making the Milky Way), and what drops below stars and clouds and touches earth, stains the ground with lilies."

The identity of the different species is wrapt in obscurity. While *Lilium chalcedonicum,* the Scarlet Martagon, covers the plains of Syria and *Lilium candidum,* the Annunciation lily, grows abundantly in these regions, it is generally conceded that the lily of the field, mentioned centuries later, was the anemone. Notwithstanding the early obscurity of the species referred to in the Bible we find that *chalcedonicum* and *candidum* were introduced into England prior to 1590, over three hundred years ago. Gerarde in his herbal, published in 1596, speaks of *candidum* as an old and well-known flower, and mentions Martagon lilies as being under cultivation as early as 1562. *Pyreniacum* was brought from the Pyrenees to England before this date. In this time much has been written of them, and about 150 species and varieties have been introduced to cultivation.

Parkinson in his "Paradisus or Garden of Pleasant Flowers," published in 1689, gives the lily the most prominent place, "because (as he says) the Lily is the more stately flower among manie." He

mentions thirteen: five varieties of the Martagon Imperial, among them the Spotted Martagon of Canada (our native *canadense*); six varieties of the Umbellati lilies; *croceum*, the golden red lily; *bulbiferum*, the red bulbed lily; and the remaining two he describes as white lilies. He adds: "the Martagon is so common I will not lose time to bestow many lines upon it."

Kaempfer, Linnaeus, and Thunberg described several species and varieties as early as 1712. The earliest attempt to publish a monograph of the genus Lilium was in 1847, by Spae. He, being a skilled horticulturist and botanist, based his work on careful observations of living forms making it by far the most complete and useful account of the genus, until DuChatre of Paris, Baker of Kew, and Max Leichtlin of Carlsruhe gave the results of their labors to the world in 1870. In 1879 Prof. Sereno Watson published his revision of North American Lilies, a very complete work. Other workers have given the results of their labors in various publications. The finest work devoted exclusively to lilies is a monograph of the genus by Henry John Elwes, published in 1880, containing about 50 folio plates colored by hand, illustrating over 60 species with very full and accurate description, life history, classification, geographical distribution, habitats, culture, etc.

Very little literature is found in American publications previous to 1870. Since that time the horticultural press has given us notes and articles on the subject, but mostly on forcing lilies, and quotations from foreign publications, excepting "Garden and Forest," which contained many original articles on the species. Horticulture met with a loss in the discontinuance of this excellent paper. If, however, the amateur looks to foreign publications for notes and cultural directions, he finds they are not suited to his needs in this climate. As for instance telling us to grow *Lilium tenuifolium* (from seed) in a hot bed, at a temperature of 70°; and in pots or pans of turfy loam, peat, and leaf-mould with the addition of one-sixth part of silver sand; also the seeds to be covered with fine soil to a depth equal to the diameter of the seed, i. e. one-eighth of an inch, and gently watered; when the plants appear to remove them to a vinery or greenhouse, where they should be placed in an airy position, kept well supplied with water, which in September should be gradually withheld and discontinued after October;

the seeds to be placed so far apart that they can grow in the pots or pans as sown (an inch to suffice); in November to pot them singly in four-inch pots or three of them in a seven-inch pot, and to winter them in a cool greenhouse.

Now if this early treatment should be practised here the chances are we would have no use for the directions for culture after September, for in our humid days in July and August the novice would find about ninety per cent of his seedlings had disappeared from damping off.

Here, we sow all the lily seeds out of doors in well-prepared beds five feet wide, in rows one foot apart, covering the seed about an inch with not too fine soil. Instead of an inch apart we sow five to ten or more seeds to the inch; covering the bed thinly with excelsior at once. As soon as the plants appear, removing the excelsior. The only care bestowed upon them after this is to keep the ground clean and the soil loose between the rows.

Neither are the dealers' catalogues, with a dozen lines of cultural directions, of much assistance. While lilies have been cultivated extensively for nearly three centuries in England very little attention was paid to them here previous to 1850. When this country was colonized, Michaux, Pursh, Bartram, Collinson, and others collected and sent bulbs of our east-coast lilies to Europe, where they have been extensively grown since. Comparatively few varieties of lilies are grown here even today. When the *speciosum* and *auratum* and their varieties were introduced they gave an impetus to lily culture. Magnificent results have been obtained in the culture of these, particularly *auratum,* in the vicinity of Boston and elsewhere.

From 1860 to 1870 the west-coast varieties were discovered and introduced. There seems to be no more interest in growing now than in the 60s or 70s. Could not this be remedied by more vigorous, aggressive work by the press and dealers? Taking up a dozen catalogues offering lilies, I find one offers 38, one 22, one 13, and the rest less than a dozen varieties, while one dealer in 1876 offered over 40 varieties, and in 1880 one firm offered 59 varieties, having them in stock. This offering only a few varieties, and the fact that the dealers tell you that they are hardy, are two causes why lilies are not more generally grown. I am speaking now of the home

garden of the average flower lover. In the gardens, for instance, in the rural districts where flowers are grown, the tiger lilies are often seen, and occasionally *auratum, speciosum,* or *elegans,* but beyond this the lily family is not represented. Few people succeed with lilies outside of the varieties mentioned. Failures result from various causes: lack of knowledge of the varieties best suited to the climate; soil, location; and cultural treatment. Some people will succeed with lilies in situations where others fail. Some will succeed with one manner of treatment while others will succeed with another.

As a rule all lilies are given as hardy by the dealer and the majority are, under certain conditions, but the climate is so varied in this country that lilies that are hardy in one section may not be in another; for instance, they are able to withstand the winter in Maine, New Hampshire, and Vermont, while they will succumb on Long Island, New Jersey, and even farther south, because the ground usually has a blanket of snow in the northern states all winter, while on Long Island and farther south the ground freezes and thaws all winter and snow rarely covers the ground for more than a week at a time, and then only three or four times during the winter. This is death to most lilies; the frequent freezing to a slight depth lifts the bulbs and pulls them off the roots the same as it does with many perennials. *Iris Kaempferi* often freezes out this way. *Funkia subcordata alba* we have to lift and heel in over winter. I have had seedling *tenuifoliums* and sets of other lilies, where they were not covered, frozen out so they were entirely out of the soil. Now we imitate the snow blanket by using coarse stable manure, or gladioli tops which is our most available mulch. Particularly tender sorts we plant in frames, mulch with litter, and cover with sash or tight shutters to carry off the water. If sash is used we cover lightly with litter to keep out the sun. We never mulch until the ground freezes, to avoid giving the mice a harbor. In my early days I bought a lot of lilies, among them *Hansoni* at $5.00 each. Thinking to do well by them, I prepared a fine border in early fall, planted them carefully at the proper distance and depth. To make sure that they would not be injured by frost I gave them a heavy covering of leaves before the ground froze, thinking I would have a good show the next year. When I uncovered them in spring, to my dismay, I found that the mice had destroyed every one.

Many lilies cannot stand our hot dry summers, coming from cool, moist ravines or mountain sides, borders of streams, or other places where the drainage is natural and perfect. To succeed with such, we must imitate nature. Aesop told the gardener of his master, Xanthus, that; "The Earth is stepmother to those plants which are incorporated into her soil, but mother to those which are her own free production." This may be the reason why our own native species are capable of withstanding the severity of our winters, while those from foreign countries are not.

The late Peter Hanson of Brooklyn, for whom our beautiful *Hansoni* was named, was one of the most successful growers in this country, growing from 1870 to 1885 all the varieties known at that time. He planted them in properly constructed rock-works where they had moisture and shade for the bulbs, thus imitating their native habitats. I visited him one summer morning at six o'clock, his only leisure time, and saw his success with many varieties which baffled the skill of others.

The late Peter Barr, when visiting this country, insisted that we should cover our lilies with lath shades. This is good for varieties which cannot stand our dry, hot days of summer, but there is no need to do it with *speciosum, tigrinums, elegans, Batemanniae,* and *auratum,* in field culture, as we have grown them successfully without artificial shading, with the two-horse cultivator thoroughly and often stiring the soil, supplying and conserving the moisture where needed. The amateur has to accomplish this by other means as did Hanson and others by mulching and shading. I have found excelsior an excellent mulch using it thinly on seed beds, and thicker on older stock; it is neat and clean; weeds can be easily removed or it can be taken off while the weeds are pulled and the soil stirred and then replaced. Coarse manure, peat, cocoa fibre, leaves, etc. may be used. A common practice among amateur cultivators is to plant lilies in shrubberies ,with good results. Care should be exercised in selecting a good location for the lily bed to have it well drained, for no lilies can thrive in ground that is water soaked. Even those growing in swamps or on the margins of brooks are found growing in the surface soil, above the water or often in the sphagnum where the medium is aerated. Lilies in their native habitats grow in a variety of soils. It does n't matter so much

what the soil is, so long as there is the requisite amount of moisture and plant food during the growing season, and perfect drainage at all times. This is a very important matter and if not attended to, failure is inevitable. Our Long Island soil is naturally drained, but where this is not the case care should be taken to plant where water will not settle or where the bulbs may be kept comparatively dry when at rest. If water settles about the bulbs it will either rot them, or when freezing will disintegrate them. This may be obviated by planting on side hills or in raised beds. Hanson's system overcame all difficulties along this line. Any soil that will grow good crops of other flowers or vegetables will grow good lilies, if plenty of fertilizing material is used. Much difference of opinion exists on this point. Some advise stable, some cow-manure; others neither, using peat or leaf mould alone; and some advise commercial fertilizers. We use a compost of vegetable matter and animal manures, making up the pile in winter, and using it the following fall, turning it well in the mean time. It is thoroughly rotted and would nearly all pass through a sieve of one-inch mesh. We find we can use this on all lilies, even seedlings and sets plowed in for the large bulbs and forked in for the beds of sets and seedlings. We use it also for top dressing and mulching in summer. I think the commercial fertilizers containing the various elements of plant food are beneficial if thoroughly incorporated in the soil.

Much depends on the time and manner of planting. The best time to plant lilies is when the tops have ripened and the leaves have fallen, and a greater measure of success results if they can be planted as soon as dug, before the bulbs or their roots get dry. But this is impossible with bulbs not at hand. In the case of Japan bulbs, their season is such that they cannot ripen the bulbs and get them to us before December, when the ground is frozen. Then they have to be kept until spring, or if they are expected, the bed can be prepared and covered with a heavy mulch to keep out the frost, when on the arrival of the bulbs they can be put in on a mild day. Few bulbs are kept over winter in as good condition as they were in the fall, except in cold storage. The amateur and dealer who must keep them on hand often do not have a proper place to keep them and they come out in the spring in too weak a state to survive more than one season. In the case of lilies from India and

the Philippines it is still worse. Of importations of *Philippinense* arriving in July, not over 10% grew and those in a crippled condition, and none survived to grow the following year. Some years ago it was stated that 70% of *auratum* failed in England and 90% in America in customers' hands the first season; but since the Japanese have allowed the bulbs to come to maturity before digging, there has been much less loss.

Lilies are often planted too near the surface in our dry climate. All lilies emit roots from the stems above the bulbs for the support of the stems, and to assist the bulb in nourishing the stem, leaves, and flowers. Now the more vigorous those roots are the finer the growth and bloom will be. The depth should be at least three inches for the small bulbs like *tenuifolium, concolor, coridion,* and our eastern native lilies. The larger bulbs should be planted deeper, six to eight inches for Tigers, *auratums, speciosums,* etc.; while *Henryi, Humboltii, Washingtonianum,* and others having large bulbs, from eight to twelve inches. *Washingtonianum* is found growing from twelve to twenty inches deep in its native habitat.

We now come to the subject proper of our talk, "Lilies for the Home Garden." We would find every variety of the family beautiful if we could grow them, for, quoting from the "Garden's Story," Mr. Peter Henderson says: "The Lily has no poor relations, and that in a general collection of species all that can be imagined desirable and perfect in floral forms will be realized. Indeed, it is beautiful in all its varied forms; and when we consider that except one or two species it is a flower with no insect pests, the lily may well be regarded as one of the greatest treasures of the hardy flower garden."

The following species and varieties can be recommended, most of which are too well known to need any description.

CANDIDUM. The Madonna or Annunciation lily. The white lily has always been a favorite. It has been the theme of the poets, the model of the painters, and the symbol of purity.

CHALCEDONICUM. The scarlet Martagon or Turk's Cap, said by many writers to be the "Lily of the Field."

MARTAGON, ALBUM, and DALMATICUM are attractive and beautiful when well grown. These three species are of easy culture and thrive if left undisturbed; they have been in cultivation over three centuries.

EXCELSUM or TESTACEUM, a cross between *candidum* and *chalcedonicum*, is worthy of a place in every garden. It inherits all the good qualities of both parents.

AURATUM. The Hill lily and varieties are grand members of the family and well repay any care bestowed upon them. These with the *speciosums* delight in peat. The type is well known and appreciated. Conspicuous among the varieties are: *rubro-vittatum, virginale, Wittei,* and *platyphyllum.* One of the finest of the *auratum* varieties, *Parkmani,* raised by Mr. Francis Parkman of Boston, is almost lost to cultivation in this country. Hardly less grand and beautiful are the various forms of *speciosum*: *rubrum* or *roseum,* and *album* are the common varieties, but equally easy of culture are the finer ones: *melpomene, magnificum, Kraetzeri,* and Opal. Many of the type of *elegans,* which now includes *Thunbergianum,* are of the easiest culture, thriving in any soil and under difficulties which would be death to some lilies. The sturdiest are *robusta,* Leonard Joerg, *bicolor, atrosanguineum,* Aurora and Midnight, Alice Wilson (lemon colored, broad-petaled, one of the handsomest of the group), *Wilsoni* (the tallest and latest to bloom, apricot tinted with purple spots). The most beautiful of all is Prince of Orange (a spotted form of a soft pleasing buff tint, very dwarf) and Peter Barr, a new and beautiful orange spotted form.

The lily most frequently seen in old gardens is the tiger lily. It will grow and thrive under any amount of neglect, in fact it is naturalized along roadsides in many places on Long Island. In addition to the type, the variety *splendens,* with taller stems and larger flowers, and the form with double flowers are showy and worthy a place in our gardens.

The coral lily of Siberia, *L. tenuifolium* is a graceful and showy lily, blooming from the middle to the last of June. It grows from one to two feet high with six to eight flowers, about two inches across, coral red in color.

Lilium Batemanniae is a sturdy grower with upright cup-shaped flowers, pure apricot color. A white lily with upright flowers is unknown.

In 1889 Dr. Henry sent from China to Kew Gardens a new lily which flowered that summer and was named *Lilium Henryi.* It is

similar to the *speciosums* and is popularly known as the yellow speciosum. Although it has been cultivated for twenty years it is yet rare and high in price. It is very hardy, thriving where *speciosums* and *tigrinums* grow. Strong bulbs throw up stems four to six feet high with a wealth of green foliage and a pyramidal corymb of six to ten orange-yellow flowers.

Lilium Wallacei has a beautiful vermilion orange colored cup-shaped flower, spotted with maroon-colored, raised dots. A late bloomer, very healthy, and of easy culture.

The true type of *Lilium longiflorum* is very satisfactory in the garden. The forcing variety, *Harrisi* is not so amenable to outside culture.

Lilium Davuricum is a little known lily, often confounded with *umbellatum,* from which it is distinct. It resembles *philadelphicum* more than *umbellatum.* A good grower with six to eight erect scarlet flowers with black spots; blooming in July.

Lilium Hansoni is one of the harbingers of spring, starting into growth the first warm days. It is of easy culture and very attractive. Of our many native lilies, but few will thrive well under ordinary treatment. The following succeed best: The *superbum* or meadow Turk's cap is a grand plant when established and well fed. It grows from four to six feet tall and bears from six to twenty-five flowers. The graceful meadow lily, *Lilium canadense* and varieties *flavum,* pure yellow, and *rubrum,* dark red, grow and flower well in cultivation.

The panther lily, *Lilium pardalinum,* a native of California, yields readily to cultivation and is very showy when established.

Many other beautiful lilies will repay the cultivator for the trouble bestowed, but the foregoing list will afford a succession of bloom and well represents the lily family in the home garden.

Discussion.

William N. Craig referred to the difficulty in growing *Lilium candidum* out of doors on account of its susceptibility to disease. He stated that for a good many years he had seen no disease on plants grown in pots under glass. Good spikes would carry 10 to

15 flowers each, while outside they averaged 5 to 10 flowers, rarely more. In some seasons the plants would flower before disease appeared, but usually it came just when the flowers were about to open, and spraying with Bordeaux mixture had not proved of much avail.

He said it should be borne in mind that there were two distinct types of *Lilium candidum*; one with large rather flat bulbs, with thin scales, which produced narrow foliage and stalks carrying only 3 to 6 flowers with narrow petals; the other had smaller but rounder and proportionately heavier bulbs with thicker scales and carried broader foliage and strong spikes frequently two to the bulb; the flowers were longer and rounder with more substance than the other type.

The large majority of American dealers carried only the poor, narrow-petaled variety and people planting them had become discouraged. The good type was mostly produced in the north of France and anyone purchasing these bulbs should insist on being given north of France stock.

Mr. Craig said that he had found *Lilium Brownii* very reliable, also *L. Hansoni,* and neither had shown disease.

E. H. Wilson gave an interesting account of the Chinese species of lilies and their native habitats. He said that China was the home of the lily; and of 30 species known to grow there 17 were native. Lilies can be grown from seed in pots with good results in from 12 to 18 months. He spoke of their economic properties, and that *leucanthemum* and *tigrinum* bulbs were eaten as delicacies.

THE DIETETIC VALUE OF FRUIT.

BY PROF. WILLIAM R. LAZENBY, COLUMBUS, OHIO.

Given before the Society, March 19, 1910.

In order to support life and growth and to maintain the strength and efficiency of the human body, some things are absolutely necessary. Among these, named perhaps in order of importance, are pure air; wholesome, nutritious food; prompt and regular removal of the excreta; unbroken sleep; and some form of muscular exercise.

No one can long enjoy a full measure of health and strength without due regard to each and every one of these.

Pure air is placed first, for if this is lacking, however great the attention to the others, health is soon undermined.

Ordinarily we supply the body with food in three daily meals, with intervals ranging from four to twelve hours, and this fully meets the demands of the body through the stomach. The demands of the body through the lungs are more imperious. They require, at least, 20,000 meals a day, with intervals of only a few seconds. But if pure air is absolutely essential to good health, food is no less so. It is necessary to form the material of the body and repair its wastes; it is also necessary to keep up the proper temperature and furnish the muscular and other power that the body exerts. In other words, it serves not only for building and repair, but for fuel as well.

Science teaches us that the energy of the sun which lights and heats this restless planet we inhabit, is stored in wood and coal, petroleum and gas, and is constantly being transformed into the heat of the furnace, the light of the lamp, the power of the steam engine, or into electricity and then into light or heat, or mechanical power again. The same energy from the sun is stored in the protein, the fats, the carbohydrates of the various foods we use, and the physiologists and chemists are today telling us how they are trans-

mitted into the heat that warms our bodies, and into the power exerted by muscle, nerve and brain.

If the propositions just stated are correct, food may be defined as anything which taken into the body aids in the building of tissues, keeping up the body heat or in the production of energy.

From this it logically follows that the most healthful foods are those which are best fitted to the wants of the user, and that the best foods are those which are most wholesome and most economical.

There is much talk about the relation of diet to health that is equally foolish and hurtful. Foolish because it subserves no good purpose and hurtful because it tends to fortify the pernicious idea that our bodies are in such wretched condition as to need constant tinkering, and that some sort of self-medication is a positive duty. In the place of this wide-spread delusion there should be an inbuilt conviction that there are various products known as foods in the choice of which, and in the quantity used, each one has daily opportunity to exercise the virtues of common sense and moderation.

One of the most pitiable errors with respect to certain food products is that which somehow confounds them with medicine. For example when one eats freely of fruits he does not feel justified in simply saying he does so because he finds them agreeable, he likes and enjoys them, but is constrained to look wise, and solemnly observe that "fruits are healthy." Some even go so far as to have for each bodily ailment a different variety of fruit. Let us banish the idea of making a drug store of our fruit gardens and orchards, and cease looking upon the family fruit dish as a sort of homeopathic pill-box.

Foods are not medicines. A medicine is something which is taken into the body to produce a certain specific and unusual effect, the object being to counteract some injurious tendency, or correct some abnormal condition. If taken when not needed its effect is likely to be directly injurious.

The normal healthy body demands what is wholesome, not what is medicinal. Anything that has real medicinal value is almost certain to be unwholesome, but an almost uncontrollable appetite may be developed for what, if properly used, may be considered medicinal.

"Blessed are they that hunger and thirst" can be as truly said

of our bodily wants as of our spiritual necessities. "Blessed" because hunger or thirst are indicative of health, and when in health the plainest food tastes good and with it we can be "filled." Nothing gives more genuine pleasure than wholesome food and good water to a hungry and thirsty man.

Among the many kinds and classes of wholesome foods, few should rank higher in importance and value than the common fruits from orchards and gardens. In satisfying our natural appetite for fruit, fruit that is well matured, juicy and fine flavored, we probably reach the highest form of palate gratification with the least possible digestive effort.

Our ordinary fruits contain eight distinct substances or compounds in greater or less proportion. These are:

1. A large proportion of water; the usual amount ranging from 85 to 90 per cent of the total weight of fresh, well-matured fruit.

2. Sugar in the form of grape and fruit sugar; the percentage is quite variable ranging from about 1.5 per cent in apricots and peaches, to about 12 per cent in some varieties of grapes and cherries. An average well-grown, fully matured apple contains about 8 per cent of sugar.

3. Free organic acids; varying somewhat according to the class of fruit, and of several kinds in each class, but altogether forming usually something less than one per cent.

The predominating acid in the apple and pear is malic; in the grape tartaric; and in the orange and lemon citric.

4. Fats, oils, and ethers; abundant in some mature fruits, like the olive, occurring in small quantities in others, and in some almost wholly wanting.

5. Protein or nitrogenous compounds; forming a very small proportion of most fruits, often not more than .2 of one per cent.

6. Pectose; a substance which gives firmness to fruit, and upon boiling yields various fruit jellies. It often forms from three to five or more per cent of the weight.

7. Cellulose and starch; the former often called vegetable fiber is the material that forms the cell walls, and is found in all parts of all plants. It is less abundant in fine fruits than in any other part of plants.

Starch which is found so largely in the cereals, and in certain

garden vegetables, is almost wholly absent in ripe fruit, being converted into sugar during the process of ripening.

8. A very small percentage of ash or mineral salts.

The substances named above with the possible exception of cellulose are all essential constituents of an ideal or well-rounded diet.

The proportion of the more important nutrients, however, are so small that much of our fruit has little direct nutritive value. Suppose we take the three principal groups, viz: carbohydrates, proteids, and fats, which together may justly be called the grand tripod of nutritive substances, and see what some of our representative fruits will furnish. The Horticultural Department of the State University has made quite a number of analyses of the strawberry, and of the substances just named the average results are as follows:

Carbohydrates.....8.0 per cent.
Proteids.....0.3 per cent.
Fats a mere trace, practically nothing.

It has been estimated by students of dietaries that the minimum daily ration of nutrients for a man of average weight performing an average day's work is:

Carbohydrates.....500 grams or 17.8 ounces.
Proteids.....118 grams or 4.2 ounces.
Fats.....56 grams or 2.0 ounces.

Taking the analyses of the strawberry, a simple calculation will show that a person would have to consume 200 ounces or 13 pounds of this fruit daily in order to obtain the requisite amount of carbohydrates from this source. To secure the proteids a daily consumption of 1,400 ounces or 88 pounds would be required. This would be a task that even those who have the most ardent taste and liking for this fruit could scarcely be prevailed upon to attempt. Even though he should eat the amount named he would still be deficient in approximately all the required fats.

Take another illustration: The nutrients contained in the apple according to the analyses that we have made are as follows:

Carbohydrates (including cellulose)..... 10 per cent.
Proteids.....2.5 per cent.
Fats.....0.2 per cent.

Applying the same calculations as before, we find that one will have to eat 178 ounces, or a little more than 11 pounds of apples a day for the requisite carbohydrates; he would be obliged to eat 168 ounces or 10½ pounds for the necessary proteids, and for the fats it would require 1,000 ounces, or 62½ pounds daily.

This demonstrates that however valuable strawberries and apples may be as a part of an every day diet, they can scarcely be considered as nutrients. In other words their actual nutrient value is exceedingly low and this is true of practically all our fruits.

In order to support life and maintain strength, strawberries and apples like most other fruits must be eaten in connection with more concentrated foods.

Wherein then does the dietetric value of fruit consist? Let us briefly consider. The qualities which render fruit and some of the more delicate garden vegetables wholesome, and cause us to have a natural appetite for, and hence to enjoy them, are their acid juiciness and flavor. The juice is largely water, but it contains the sugar and acid of the fruit, and if these are present in large quantities and in the right proportion, it is agreeable and refreshing. Most of our food products are valued on the basis of the dry matter they contain; not so with fruit.

Pure milk is 87 per cent water and may be further diluted by breed, feed, and greed, and its value as food diminished thereby. Many of our fruits contain as much water as average milk, but, as a rule it is the best fruit that contains the most water. I have frequently tested the amount of water in "nubbin" strawberries, "cull" peaches, and "runty" apples, and have found less than 80 per cent. In the finest specimens of each of these fruits, not overgrown but perfect samples, that would sell for the very highest price, I have usually found over 90 per cent of water. A heaped bushel of fine large peaches, that contain 100 specimens showed when tested 92 per cent of water, leaving only 8 per cent solids. This bushel of peaches sold readily at $3.00. A heaped bushel of small peaches of the same variety, this bushel containing 400 specimens, showed 84 per cent of water, and 16 per cent of dry matter. These were sold with difficulty at 70 cents for the bushel. This shows that the acid juiciness is one of the main factors in the value of fruit. Flavor also adds to the quality of fruit. Flavor is due in part to the

organic acids already mentioned, but more largely to certain volatile oils and aromatic ethers. It is to these oils and ethers that those delicate characteristic flavors of different varieties of fruit are chiefly due. Chemistry and physiology have taught us that when these "fruity" acids, oils, and ethers are taken into the body, they undergo oxidation, which process tends to lower the temperature of the blood or at least to modify our temperature sensations, and thus correct or allay any slight feverishness that may exist. They also tend to keep the organs of secretion, the liver, kidneys, etc., as well as the whole digestive tract in healthy condition. The free acids of fruits, especially citric and malic, are highly antiseptic bodies, and tend to prevent disease germs from finding a lodgment and developing in the body.

In our climate, subject as we often are to rapid changes and extremes of temperature, the physical system is naturally more or less debilitated. In this connection we are predisposed to colds, fever, and other troubles. Fruits and acid vegetables are known to be good correctives for this debilitated condition. We should remember that as a rule, the full beneficial effects of fruit are only to be found in those that are well grown and mature. Green or unripe fruit may have an abundant supply of acids, but such fruits are usually injurious when eaten on account of their indigestibility. This is due partly to the fact that the starch is not yet converted into sugar, and partly to the coarse and hard condition of the cellulose. When fruits are perfectly developed and properly matured, practically all the starch is converted into sugar and the cellulose is soft and fine. We know that unripe fruit is not wholesome. It digests slowly, often ferments in the stomach, and is the cause of painful disorders. It is unwise to take into our stomachs unripe fruit, it is equally unwise to eat that which is over-ripe. The best results from the dieteric use of fruits come from eating those that are fresh, healthy, and well matured.

Fine fruits are the flowers of edible commodities. They please the eye, gratify the taste, and minister to our health. If we appreciate them at their worth, we should use them more freely and our markets would be better supplied with this wholesome, palatable class of food products.

The increasing interest manifested in food reform, which has

already resulted in the more general use of a balanced ration for the human stomach, should, in view of the high cost of living, consider the dietetic value of nuts as well as fruit.

It is not unlikely that our present dietaries will be so modified in the near future as to include a larger use of these two important classes of food products.

The use of nuts, particularly, may well be encouraged at this time, when meats of all kinds are so high as to be almost prohibitive, and a more purely vegetable diet is demanded on the score of economy. As is well known a large part of our vegetable foods are deficient in fat. Nuts excel in fat. Chemical analysis has shown that the kernels of the butternut may contain as high as 60 per cent of fat, the black walnut 50 per cent, and the American chestnut 15 per cent. This proves that a comparatively small quantity of nut kernels will supply the requisite amount of this ingredient for a well balanced daily ration.

Nuts are also comparatively rich in proteids.

The Waste and Economic Value of Nuts.

In the following comparisons the term *nut* is used in the commercial rather than in the structural or botanical sense.

The first table shows the number of nuts in a pound for the various kinds examined. The smallest numbers are represented by the black walnut, large hickory nuts, Brazil nuts and foreign chestnuts, while the largest numbers are found with the peanut, filbert and American chestnut. There is a marked difference between different species or varieties of hickory nuts. For example, it takes nearly four times as many of the shell-bark hickory nuts to weigh a pound as it does of the large or "king" hickory nuts. The table also shows the percentage of kernel or edible portion and the percentage of shell or waste.

It will be seen that the largest percentage of kernel (87 per cent) is found in the Spanish chestnut. The second highest (75 per cent) is given by the American chestnut. This is closely followed by the peanut, which contains 72 per cent of kernel or edible portion.

The lowest percentage (20) is found in the large hickory nut. The black walnut and butternut also stand very low in percentage of kernel. Comparing the Maderia nut (English walnut) with the

black walnut, another species of the same genus, we observe that it has nearly twice the amount of kernel.

A comparison of the two varieties of chestnut well illustrates the influence of cultivation and selection in the improvement or amelioration of our nut fruits. The difference makes the ratio of shell to kernel 1 to 3 in one case, and 1 to 6 in the other, or in other words, the shell or waste of the Spanish chestnut has been reduced one-half. It might be inferred from the comparative size of the two varieties as indicated by the respective number it takes to make a pound of each, that there would be a still greater difference in the weights of the kernel. Inspection shows, however, that the kernel of the large chestnut is not compact and solid like that of the small variety.

It should be noted that the sample of Brazil nut examined was poor, a considerable proportion of the nuts being bad, which had the effect of reducing the percentage of kernel.

It was found during the course of the investigation that with the most careful cracking of some of the larger nuts, there is a "milling" or cracking loss of nearly two per cent of the total weight of kernels.

TABLE NO. 1.

Kind of Nut	Number in one pound	Percentage of shell or waste	Percentage of kernel or edible part
Large Black Walnut	20	82.	18.
Small Black Walnut	56	79.7	20.3
English Walnut	54	58.	42.
Butternut	41	79.4	20.6
Large Hickory	54	80.	20.
Shell-bark Hickory	179	68.	32.
Spanish Chestnut	37	12.5	87.5
American Chestnut	230	25.	75.
Filbert	222	55.	45.
Large Pecan	100	51.	49.
Small Pecan	216	61.8	38.2
Brazil Nut	48	62.3	37.7
Almond	83	72.5	27.5
Peanut	256	26.5	73.5

Table No. 2 shows the financial side of the question. The small boy with a burning nickle in his pocket, or any one with an unsatisfied appetite for nuts will find this table of great value. If we throw aside individual taste and consider the question from a strictly economic basis, we find that the peanut is the cheapest nut in the whole list. Coming next are black walnuts and hickory nuts.

Compare the peanut with the pecan. The small pecan sells for one-third more per pound, but the actual value received is over fifty per cent in favor of the peanut. One of the most expensive nuts is the almond at twenty cents a pound. Compared with the English walnut which usually sells at the same price it is one-third more expensive.

The prices mentioned in the table are current market quotations:

TABLE NO. 2.

Kind of Nut	Market value per pound	Amount that can be purchased for 5 cents	Per cent of whole nut that is kernel	Amount of kernel bought for 5 cents
Large Black Walnut	2 cts.	40 oz.	18.	7.2 oz.
Small Black Walnut	2 "	40 "	20.3	8.1 "
English Walnut	15 "	5.3 "	42.	1.7 "
Butternut	2 "	40 "	20.6	8.2 "
Large Hickory	3 "	26.6 "	20.	5.3 "
Shell-bark Hickory	3 "	26.6 "	32.	8.5 "
Spanish Chestnut	15 "	5.3 "	87.5	4.6 "
American Chestnut	15 "	5.3 "	75.	3.9 "
Filbert	15 "	5.3 "	45.	2.3 "
Large Pecan	20 "	4 "	49.	1.9 "
Small Pecan	15 "	5.3 "	38.2	2. "
Brazil Nut	15 "	5.3 "	37.7	1.9 "
Almond	20 "	4 "	27.5	1.1 "
Peanut	10 "	8 "	73.5	5.8 "

TRANSACTIONS

OF THE

MASSACHUSETTS HORTICULTURAL SOCIETY

FOR THE YEAR 1910

PART II

PUBLISHED BY THE SOCIETY
BOSTON
NINETEEN HUNDRED AND ELEVEN

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Massachusetts Horticultural Society

1910

The Transactions of the Society are issued annually in two parts under the direction of the Committee on Lectures and Publications.

Communications relating to the objects of the Society, its publications, exhibitions, and membership, may be addressed to William P. Rich, Secretary, Horticultural Hall, No. 300 Massachusetts Avenue, Boston, Massachusetts.

Committee on Lectures and Publications

William J. Stewart, *Chairman*
Harry F. Hall
William P. Rich
Edward B. Wilder

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TRANSACTIONS

OF THE

Massachusetts Horticultural Society.

1910, PART II.

REPORT OF THE BOARD OF TRUSTEES FOR THE YEAR 1910.

The Board of Trustees of the Massachusetts Horticultural Society presents herewith a report of the various items of business acted upon at its sessions during the year 1910.

There have been held eight meetings with an average attendance of nine members.

January 1. The following communication from George R. White, Esq., was presented:

BOSTON, NOVEMBER 27, 1909.

THE TRUSTEES OF THE MASSACHUSETTS HORTICULTURAL SOCIETY.

Gentlemen:

I have long thought that there is an opportunity for broadening the field of influence of the Massachusetts Horticultural Society and of extending the interest in its work if some suitable recognition were made of those persons who have accomplished important results in horticulture. The award to be made independently of or in addition to any prizes or certificates of merit that may be bestowed by the Society in the course of its regular schedule of premiums.

I therefore offer to the Massachusetts Horticultural Society the sum of two thousand five hundred dollars to be securely invested as a permanent fund and the income thereof to be devoted annually for the specific purpose of providing a substantial gold medal to be awarded by the executive

management of the Society to the man or woman, commercial firm or institution, in the United States, that has done the most during the year to advance the interest in horticulture in its broadest sense.

This award to be known as the George Robert White Medal of Honor.

In addition I will defray the cost of a permanent die for the medal, the cost of a die for a button of gold that may be added to the medal to be worn by the recipient in lieu of it, and the cost of producing the first medal and button; all to be contributed at this time to enable the Society to award them the present year.

(Signed)

GEO. R. WHITE.

On motion of Prof. Sargent it was voted to accept the offer of Mr. White and the Secretary was instructed to express to him the thanks of the Society together with the expression of the appreciation of the Board of Trustees of his generous interest in the Society's work.

It was voted also, on motion of Mr. Dorr, that a committee of three be appointed, of which the President should be one, to present the name of a candidate for the first award of the George Robert White Medal of Honor for the year 1909. The President named as this committee Messrs. Dorr, Farquhar, and Weld.

Mr. Hunnewell, the Treasurer, reported favorably in the matter of paying the amounts awarded for prizes and gratuities in the year in which they are made and of charging them to the account of that year.

On motion of Mr. Dorr it was voted that the suggestion of the Treasurer be adopted and that the change in the method of paying the awards for prizes and gratuities begin with the year 1909.

Mr. Pettigrew, chairman of the committee appointed to present a list of nominations for the standing committees of the Society for the year 1910, submitted the following report:

Your committee appointed to nominate candidates for the committees of 1910 beg to submit the following for your consideration:

Finance:— Walter Hunnewell, Chairman, Arthur F. Estabrook, Stephen M. Weld.

Library:— Charles S. Sargent, Chairman, Ernest B. Dane, George B. Dorr, Charles S. Minot.

Prizes and Exhibitions:— John K. M. L. Farquhar, Chairman, Robert Cameron, William N. Craig, M. A. Patten, John A. Pettigrew, Charles S. Sargent.

Plants and Flowers:— T. D. Hatfield, Chairman, Duncan Finlayson, Peter Fisher, Samuel J. Goddard, Thomas Roland, William Thatcher.

Fruits:— Edward B. Wilder, Chairman, J. Willard Hill, James Wheeler.

Vegetables:— Josiah B. Shurtleff, Jr., Chairman, John W. Duncan, George D. Moore.

Gardens:— Charles W. Parker, Chairman, Arthur F. Barney, James H. Bowditch, Arthur H. Fewkes, T. D. Hatfield, Julius Heurlin, William Nicholson, Wm. P. Rich, Wm. J. Stewart, J. B. Shurtleff, Jr., Wilfrid Wheeler.

Children's Gardens:— Mrs. R. G. Shaw, Chairman, Mrs. E. M. Gill, Mrs. Katharine P. Peabody, Mrs. Dudley L. Pickman, Miss Margaret A. Rand, Mrs. John E. Thayer.

Lectures and Publications:— Wm. J. Stewart, Chairman, Harry F. Hall, Wm. P. Rich, Edward B. Wilder.

(Signed) Wm. N. Craig
John A. Pettigrew
Peter Fisher
Committee.

On motion of Mr. Farquhar, the list of nominations as presented by the nominating committee was unanimously adopted.

On motion of Mr. Kidder it was voted that the President appoint a committee of three to consider the matter of a revision of the salaries of the exhibition committees. The President appointed as this committee Messrs. Farquhar, Pettigrew, and Dorr.

Appropriations for the current year were voted as follow:

For the Committee on Library, $400.00 in addition to the income of the French and Farlow Funds.

For the Committee on Lectures and Publications, $300.00, to include the income of the John Lewis Russell Fund.

For the Committee on Prizes and Exhibitions, for the arrangement of the exhibitions during the year, $250.00.

Prof. Sargent, chairman of the Committee on Library, called attention to the desirability of publishing a new catalogue of the library, none having been printed since 1873; and he moved and it was voted that an appropriation of $500.00 be made towards the preparation of such a catalogue.

Mr. Farquhar called attention to the valuable and interesting collection of 750 photographs of Chinese plants, animals, and scenery, made by Mr. E. H. Wilson of the Arnold Arboretum, Botanical Exploration Expedition, now on exhibition in our hall, and suggested that some suitable recognition should be made of it by the Society. Mr. Farquhar moved and it was voted that the Society's Gold Medal be awarded to Mr. Wilson for this exhibition.

The special committee appointed to suggest the name of a candidate for the first award of the George Robert White Medal of Honor for the year 1909 reported the name of Prof. Charles S. Sargent, Director of the Arnold Arboretum. This report was unanimously approved.

The following named persons having been duly recommended in accordance with the By-laws were elected to membership in the Society:

Henry O. Underwood of Belmont, proposed by N. T. Kidder.

Emil Camus of Boston, proposed by C. W. Parker.

George C. Thurlow of West Newbury, proposed by W. P. Rich.

Prof. William Fenwick Harris of Cambridge, proposed by R. Cameron.

David R. Craig of Boston, proposed by R. Cameron.

William Downs of Chestnut Hill, prcposed by J. K. M. L. Farquhar.

Frederick Wm. Dahl of Roxbury, proposed by W. P. Rich.

G. C. Andrew of Boston, proposed by J. K. M. L. Farquhar.

Herbert Jaques of Chestnut Hill, proposed by C. S. Sargent.

January 31. President Weld presented a letter from Joseph B. Warner, Esq., advising the Society's assent to a decree of the Supreme Judicial Court in Equity re Augustus P. Loring et al, Trustees, vs. William Power Wilson et al. On motion of Mr. Hunnewell it was voted to accept the recommendation of Mr.

Warner and that he be authorized to carry out the provisions of the decree, and that each side pay its own legal fees.

The Board confirmed the appointment by the President of Messrs. J. A. Pettigrew, Wm. N. Craig, and Robert Cameron as a committee to represent the Society in the proposed exhibition of the Society of American Florists in 1911.

Mr. Walter Hunnewell was appointed Treasurer of the Society and Mr. Wm. P. Rich was appointed Secretary, Librarian, and Superintendent of the Building for the current year.

It was voted that the George Robert White Medal of Honor Fund be invested by the Treasurer with interest at four per cent.

On motion of Mr. Farquhar it was voted that the board floor of the large exhibition hall be taken up and that the Committee on Prizes and Exhibitions be authorized to relay such portions of space with cement as may be desirable for the Orchid Show of May next.

On motion of Mr. Farquhar it was voted to authorize the Committee on Prizes and Exhibitions to suspend the publication of the Schedule for 1910 to such an extent as the committee may see fit.

The following named persons were elected to membership in the Society:

William C. Rust of Brookline, proposed by J. K. M. L. Farquhar.

Mrs. Francis H. Stone of New Bedford, proposed by N. T. Kidder.

Mrs. George R. Briggs of Plymouth, proposed by N. T. Kidder.

Miss Natalie S. Whitwell of Boston, proposed by A. H. Parker.

D. Roy Smith of Boston, proposed by H. F. Hall.

April 5. The President stated that the principal business of this meeting was the consideration of the matter of renovating the interior of the Society's building and asked for an expression of opinion from the members of the Board as to the desirability of the proposed alterations. He said that the present arrangement of the halls was not satisfactory and he thought the time had come when something should be done to remedy the existing defects that the work of the Society might be more satisfactorily carried on and the revenues from rental of the halls increased.

Mr. Farquhar spoke in favor of remodeling the building and

exhibited some plans outlining the changes which he thought should be made.

Mr. Dorr suggested that the first step to be taken was a vote of the Trustees on the desirability of the proposed undertaking, and on his motion it was unanimously voted that in the opinion of the Board of Trustees the proposed alterations of the Society's building are desirable.

On motion of Mr. Dorr it was further voted that a committee of three be appointed, of which the President should be one, to consider ways and means and to have authority to procure plans from architects and to report to the Board at a future meeting. It was voted also that this committee be authorized to spend a sum not exceeding $1000.00 for architects' plans. The President appointed as this committee Messrs. Weld, Dorr, and Kidder.

The following named persons were duly elected to membership in the Society:

Prof. F. C. Sears of Amherst, proposed by Wilfrid Wheeler.
C. B. Turner of Roxbury, proposed by W. N. Craig.
Harold S. Ross of Hingham, proposed by J. G. Jack.
Mrs. Julie R. French of Reading, proposed by Charles N. Brush.

June 14. A communication from Secretary Ellsworth of the State Board of Agriculture was presented suggesting that this Society contribute $25.00 to the Corn Exposition to be held at Worcester in November next. On motion of Mr. Farquhar this amount was voted.

On motion of Mr. Parker it was voted that Mrs. Ellen M. Gill of Medford be made a life member of the Society, with remission of the usual dues, in recognition of her eightieth birthday and also of her long and faithful interest in the work of the Society, she having been an annual member since 1865.

President Weld, for the committee on the proposed alterations of the Society's building, reported that on account of the great cost of the work the members of this committee were of the opinion that no changes should be made at present.

Mr. Farquhar expressed the hope that the matter be not dropped and the subject was referred back to the special committee for

further consideration. This committee was authorized also to report on the matter of a new floor for the large exhibition hall.

The following named persons were duly elected to membership in the Society:

J. F. Flanagan of Newton, proposed by J. K. M. L. Farquhar.
A. H. Handley of Newton, " " " "
Lewis Kennedy Morse of Boston, " " " "
Frederick R. Galloupe of Lexington, proposed by A. F. Estabrook.
Edward J. Halloran of Roxbury, proposed by James H. Bowditch.

June 30. A communication from Lewis H. Farlow was presented offering to the Society a fund of $2500.00 left by his father, the late John S. Farlow, to the Newton Horticultural Society. Inasmuch as the Newton Society is inactive and inoperative Mr. Farlow desires to turn the fund over to the Massachusetts Horticultural Society. The income of this fund is to be expended in prizes and gratuities for pear and foreign grape culture. Mr. Farlow also requests that the fund be so designated as to perpetuate the name of the donor, John S. Farlow of Newton, Massachusetts, (died March 20, 1890) and that of the Newton Horticultural Society.

On motion of Prof. Sargent it was voted that the generous offer of Mr. Farlow be accepted together with the conditions attending it and the income of the fund devoted to the purposes stated.

The special committee on the proposed alteration of the Society's building reported through its chairman, President Weld, that it was inadvisable at present to make any change in the interior of the building.

On motion of Prof. Sargent it was voted that a new floor be laid in the large exhibition hall at an expense not exceeding $2000.00. It was voted also, on motion of Prof. Sargent, that the matter of electrifying the freight elevator and of putting in a passenger elevator be referred to the special committee on alteration of the building.

James G. Freeman of Boston, proposed by Walter Hunnewell, was elected a member of the Society.

August 4. The Secretary reported the receipt of a letter from Lewis H. Farlow containing a check for the amount of $2882.87 in conformity with his offer read at the previous meeting and accepted by the Board of Trustees. The fund thus established to be known as the John S. Farlow Newton Horticultural Society Fund. On motion of Prof. Sargent it was voted to accept the communication of Mr. Farlow with the thanks of the Society for his interest in the matter and that the amount be referred to the Finance Committee for investment.

Mr. Hunnewell read a statement, prepared by J. B. Warner, Esq., in explanation of the recent settlement of the petition of William Power Wilson to the Trustees of the Hayes Estate. It stated that Mr. Wilson offered to settle the matter by accepting $6000.00. This offer was accepted by vote of the Trustees of the Massachusetts Horticultural Society and the remaining money in the hands of the Hayes Estate Trustees to be held in trust, the income to be paid to Mr. Wilson during his life and on his death to be paid to the Horticultural Society if Mr. Wilson left no children.

Mr. Warner stated that it is always to be borne in mind that the Horticultural Society will have to pay over to Harold Hayes, the son of Mr. Hayes, one-third of what it may get on Mr. Wilson's death.

President Weld and Mr. Hunnewell the special committee on the subject of the new contract with the Proprietors of Mount Auburn Cemetery reported favorably on the acceptance of the proposed new agreement and on motion of Prof. Sargent it was voted to accept the amended contract as presented by this committee.

Mr. Farquhar presented a request from the Committee on Prizes and Exhibitions for an appropriation of $6000.00 for Prizes and Gratuities for the year 1911. On motion of Mr. Estabrook it was voted that a sum not exceeding $6000.00 be appropriated for this purpose subject to the approval of a special committee appointed by the President. The President appointed as this committee Mr. Estabrook and the Secretary.

It was voted also, on motion of Mr. Farquhar, to give the use of the halls to the New England Dahlia Society for the purpose of holding its annual exhibition for the current year.

It was further voted that the matter of coöperation with the Society of American Florists at its exhibition in Boston in March, 1911, be referred to the Committee on Prizes and Exhibitions without additional expense to the Massachusetts Horticultural Society.

On motion of Mr. Farquhar it was voted to request the special committee on the matter of elevators in the Society's building to postpone action for the present.

The following named persons were duly elected to membership in the Society:

Miss Elizabeth G. Houghton of Boston, proposed by C. S. Houghton.

John G. Morrison of Cambridge, proposed by Mrs. E. M. Keyes.

Albert Geiger, Jr., of Brookline, proposed by C. W. Parker.

October 10. A communication from H. F. Hall was presented suggesting that this Society invite the Vegetable Growers' Association of America to hold its next annual meeting at Horticultural Hall, Boston, and that if possible a large and complete exhibition of vegetables be arranged for the same date.

Mr. Bowker spoke in favor of the propositions made in Mr. Hall's letter and on motion of Mr. Kidder it was voted to invite the Vegetable Growers' Association of America to hold its annual meeting in 1911 in the Society's building. It was further voted that this Society offer to coöperate with the Vegetable Growers' Association in the matter of holding a large vegetable exhibition on that occasion.

The President reported for the special committee on the subject of a new contract with the Proprietors of Mount Auburn Cemetery that the members of this committee had carefully considered the matter and favored the cancellation of the old contract of December 18, 1858, and the substitution of a new one in which the obligations of the Society were more definitely stated.

The terms of the new contract were presented and explained to the Board by F. W. Hunnewell, 2d, Esq., attorney for the Society. The principal point at issue was the relieving of the Society of any obligation to contribute towards the purchase of any lands that may hereafter be purchased by the Proprietors of the Ceme-

tery or of the cost of any columbaria now erected or that may be erected in the future.

In consideration of the Society being relieved of these obligations it agrees to relinquish all rights to share in the proceeds of the sale of such lands or in the income of any such columbaria.

On motion of Mr. Bowker it was voted to accept the recommendations made in the report of this committee and to authorize the President in the name of the Society to execute and deliver a contract between it and the Proprietors of the Cemetery of Mount Auburn annulling the contract heretofore existing between said corporations, dated December 18, 1858, and amendments thereto, and substituting in place thereof the contract hereby authorized; said last named contract bearing date October 8, 1910, and that the Treasurer be authorized to affix thereto and attest the corporate seal.

The President appointed Messrs. Pettigrew, Craig, and Parker a committee to present at a future meeting a list of candidates for the various standing committees of the Society for the year 1911.

Mrs. W. E. Hayward of Ipswich, proposed by C. A. Campbell, was duly elected a member of the Society.

December 10. The following communication from George R. White, Esq., was presented:

BOSTON, NOVEMBER 7, 1910.

TO THE TRUSTEES OF THE MASSACHUSETTS HORTICULTURAL SOCIETY.

Gentlemen:

I desire to increase the amount of the George Robert White Medal of Honor Fund to $5000.00 and therefore offer to the Massachusetts Horticultural Society an additional sum of $2500.00 to be invested as stated in my previous gift and for the purpose therein set forth. I also desire to incorporate in the conditions for the award of said Medal of Honor the following additions:

1st. That the Medal may be awarded to the person, firm, or institution whose work for the advancement of horticulture may not have been wholly done in the year in which the award shall be made, but the results of whose work in recent years shall be deemed by the executive management of the Society as worthy of recognition.

2d. If in any year or in the recent years preceding the time for making the award there appears to have been accomplished no work of a sufficiently

high standard to warrant the award of said Medal of Honor the income of the Fund for that year shall be added to the principal of the Fund.

3d. While the medal is intended principally to recognize work done by a resident of the United States in advancing the interest in horticulture it may be awarded from time to time to a person, commercial firm, or institution of some foreign country the results of whose work in horticulture may be of direct benefit to the interests of horticulture in the United States.

4th. The Medal shall be awarded but once to the same person, firm, or institution.

5th. I hereby withdraw my previous offer in regard to a button to be given with the Medal.

(Signed) Geo. R. White.

On motion of Prof. Sargent it was voted to accept the gift of Mr. White together with the additional conditions in regard to the award of the Medal.

It was voted also to appoint a special committee to report a candidate for the award of the Medal for the present year; the same committee to have authority to consider the award for the year 1911. The President appointed as this committee Messrs. Sargent, Farquhar, and Roland.

The special committee on nomination of Standing Committees for the year 1911 submitted a report which after some modification was accepted as follows:

Standing Committees for 1911.

Finance:— Walter Hunnewell, Chairman, Arthur F. Estabrook, Stephen M. Weld.

Prizes and Exhibitions:— John A. Pettigrew, Chairman, Robert Cameron, William N. Craig, John K. M. L. Farquhar, J. Willard Hill, M. A. Patten.

Plants and Flowers:— T. D. Hatfield, Chairman, Joseph Clark, Arthur H. Fewkes, Peter Fisher, Thomas Roland, William C. Rust.

Fruits:— Edward B. Wilder, Chairman, William Downs, Wilfrid Wheeler.

Vegetables:— Duncan Finlayson, Chairman, Vincent Buitta, William N. Craig, Edward Parker, Herbert W. Rawson.

Gardens:— Charles W. Parker, Chairman, Arthur F. Barney, Arthur H. Fewkes, T. D. Hatfield, William Nicholson, J. A. Pettigrew, Wm. P. Rich, Charles Sander, J. B. Shurtleff, Jr., Wilfrid Wheeler.

Library:— Charles S. Sargent, Chairman, Ernest B. Dane, George B. Dorr, Charles S. Minot.

Lectures and Publications:— C. W. Hoitt, Chairman, John K. M. L. Farquhar, Wm. P. Rich, Edw. B. Wilder.

Children's Gardens:— Mrs. Robert G. Shaw, Chairman, Mrs. E. M. Gill, Mrs. W. Rodman Peabody, Mrs. Dudley L. Pickman, Miss Margaret A. Rand, Mrs. John E. Thayer.

Mr. Farquhar spoke on the subject of the proposed vegetable exhibition for the year 1911 and advocated the holding of such an exhibition to be devoted entirely to exhibits of vegetables. He also, as chairman of the Committee on Prizes and Exhibitions, presented a draft of the Schedule for the ensuing year which was accepted and its publication ordered.

Prof. Sargent presented the following nominations for Corresponding Membership:

Mr. W. J. Bean, Royal Gardens, Kew, England,
Prof. U. P. Hedrick, New York Agricultural Experiment Station, Geneva, N. Y.,
Mr. John Dunbar, Rochester, N. Y.,
Mr. E. H. Wilson, London, England,
Mr. Wilhelm Miller, Garden City, Long Island, N. Y.;

and Mr. Parker presented the names of

Mr. Adin A. Hixon, Worcester, Mass., and J. Ewing Mears, M. D., of Philadephia.

It was voted to recommend them for election as Corresponding Members at the next meeting of the Society.

The following named persons were duly elected to membership in the Society:

Frank J. Dolansky of Lynn, proposed by Thomas Roland.
Martin Sullivan of Brookline, proposed by D. Finlayson.
Edward Parker of North Easton, proposed by W. N. Craig.
Mrs. J. A. Garland of Buzzards Bay, proposed by J. H. Gardiner.
Richard Hittinger of Belmont, proposed by H. F. Hall.

WILLIAM P. RICH,
Secretary.

REPORT OF THE COMMITTEE ON PRIZES AND EXHIBITIONS FOR THE YEAR 1910.

BY JOHN K. M. L. FARQUHAR, CHAIRMAN.

During the year 1910 only four exhibitions were held by the Society.

The first took place February 26, 27, and 28 and included primulas, cyclamens, orchids, hyacinths, tulips, narcissi, and other spring-flowering plants; also cut roses, carnations, and sweet peas. There were also collections of winter apples and forced vegetables. This exhibition was remarkably good and was well attended.

The usual spring show in March was omitted in favor of an extraordinary exhibition of orchids to take place two months later.

The Orchid Show opened at eight o'clock on the evening of May 26 and continued for five days, closing at ten o'clock P. M. on May 30. The attendance the first evening, at which admission to non-members of the Society was three dollars, was not large; but on the two following days there was a large attendance, the admission being one dollar. The total receipts were $2884.25. The three halls of the Society were completely filled with magnificent groups of plants and cut blooms, representing a value far exceeding that of any other exhibition ever held in the United States. Visitors from Europe who came expressly to attend this show were unanimous in proclaiming it the finest orchid exhibition they had ever seen.

This was the first occasion in the history of American horticulture when an extensive exhibit of plants was sent from Europe to be shown at an exhibition in this country. Numerous photographs of groups and specimen plants were taken and will be reproduced with the records of the exhibition. The individual exhibits will be described in the report of the Committee on Plants and Flowers and need not be mentioned further in this report.

The importance of such an exhibition in the advancement of horticulture may be understood when it is stated that one exhibitor in the orchid classes estimated the advertising value of his exhibits at the Orchid Show at twenty-five thousand dollars.

No large exhibitions were held after the Orchid Show on account of a desire on the part of the Trustees to remodel the Society's building. This project, we regret to say, the Trustees later saw fit to postpone to some future time.

The Schedule for the year 1911 provides for the usual exhibitions of the Society except the Spring Exhibition which has given place to the National Flower Show of the Society of American Florists to be held during the last week of March in the Mechanics Building and in which our Society will coöperate.

Your committee is indebted to Mr. Robert Cameron for the able manner in which he has superintended the exhibitions. We wish also to commend the work of Mr. Joseph Spry, the Janitor of the building, for his care of the exhibition property, for the great pains he takes in getting the halls in condition to receive exhibits, for his general outlook for the interests of the Society, and for his helpfulness to exhibitors and others during the exhibitions.

JOHN K. M. L. FARQUHAR
ROBERT CAMERON
WILLIAM N. CRAIG
M. A. PATTEN
JOHN A. PETTIGREW
CHARLES S. SARGENT

Committee on Prizes and Exhibitions.

REPORT OF THE COMMITTEE ON PLANTS AND FLOWERS FOR THE YEAR 1910.

BY T. D. HATFIELD, CHAIRMAN.

The exhibitions for the year 1910 were limited on account of proposed alterations of the interior of Horticultural Hall. In consequence no regular schedule was issued and no regular dates fixed. The shows have been held at irregular intervals and have been up to the average.

On January 22 a gratuity was awarded Joseph R. Leeson for a small but well-grown collection of orchids.

Midwinter Flower Show.

On February 26 to 28 was held what was called a Midwinter Show, corresponding in time with what used to be termed the Spring Show, and was well up to the average in quantity and quality of the exhibits.

Nicholson's giant mignonette and Sim's sweet peas were special features. The best among the sweet peas were Christmas Pink, Mrs. Wallace, Florence Deuzet, Pink Beauty, Mrs. W. W. Smalley, and Greenbrook. This collection received a Silver Medal. The competition was very close between the exhibitors for the prize for the best vase of 100 blooms of sweet peas and the first prize went to William Sim, Norris F. Comley being a close second.

There was an extra large carnation display which every year becomes more and more a feature of our winter shows and we ought to be grateful to the carnation growers for the splendid displays they put up and keep up. We do not see how in any way it can pay them to exhibit so many choice flowers for the small prizes

the Society gives. The names of the prize winners and varieties are as follow: White, White Perfection, M. A. Patten; Scarlet, Beacon, M. A. Patten; Yellow, Hattie Starritt, M. A. Patten; Mixed, Mrs. Frederick Ayer; Flesh Pink, Pink Delight, S. J. Goddard; Winsor Shade, Winona, M. A. Patten; Crimson, Harry Fenn, Backer & Co.; New varieties, not in commerce, Wodenethe, Winthrop Sargent, awarded a Silver Medal; Light Pink, May Day, Peter Fisher, awarded a Silver Medal. S. J. Goddard and M. A. Patten were awarded a Silver Medal and a Bronze Medal respectively for a vase of 100 blooms. The New Hampshire College received Honorable Mention for a collection of seedling carnations and the same award was given to John Barr for a variegated seedling.

Cyclamens were as usual very good. Dr. C. G. Weld won the Silver Medal for the best 24 plants in seven-inch pots. We would prefer to see well-grown year-old plants in seven-inch pots rather than larger and older ones which hardly ever have the quality of bloom. Competition for first and second for 25 cyclamens in six-inch pots was very close, Dr. Weld again obtaining first with E. J. Mitton a close second.

William Whitman's and Mrs. J. L. Gardner's *Primula stellata,* which took first and second prizes respectively, were both very good.

Schotel's blue hyacinth as shown by William Whitman and Mrs. J. L. Gardner was extra fine and Mr. Whitman's collection of spring-flowering bulbous plants was equal to the first class even though there was no competition.

Competition for the prizes for early tulips was not extensive. The prize for the best six pans went to Mr. Whitman. The first prize for the best collection of Large Trumpet Narcissi also went to Mr. Whitman; prominent varieties in the display were Emperor, Horsfieldii, Mrs. J. B. M'Camm, and Mme. de Graff. He also took first for a collection of Short Trumpet Narcissi.

The Langwater Gardens of North Easton, Wm. N. Craig, Superintendent, made a beautiful display of orchids and was awarded a Silver Medal. The following species and varieties were included in this exhibit:

Laelia anceps alba — pure white
" " Schroderae
" " Schroderiana
" " Dawsonii — white forms
" " Stella
" " Sanderiana
" " Amesiae — rich crimson maroon lip
" " Protheroiana
" " Winniana — each very distinct and extra fine forms
" " Hillii
" × Bella
Cypripedium × Olivia (tonsum × niveum)
" insigne Sanderae
" " Ernesti — yellow forms
" " Amesiae
" villosum albo marginata
" Sallieri aureum
Dendrobium × Luna
" × Edithae
" × Euryalus
" × Juno
" × Cybele
" × chrysodiscus
" nobile pulcherrimum
" " virginale
" " Ballianum
" " nobilius
" " Amesiae
" " majus
" Schneiderianum grandiflorum
" Amesianum "
Cattleya Trianae alba
" " Leeana, very broad petals and rich lip
" × Eurydice
Brasso-Cattleya Digbyano-Mossiae
Selenipedium × Brysa
" × Helenae

Thomas Watt, gardener to Mrs. Pauline Durant of Wellesley, took first prize for a specimen orchid with a fine plant of *Laelia anceps.*

Mrs. J. L. Gardner's collection of hard-wooded plants was especially good. It included Chorizemas, especially well grown, *Acacia Drummondi, A. longifolia, A. heterophylla, A. pubescens, A. cultriformis, Erica mediterranea,* and *Rondeletia gratissima.*

There was a very showy vase of the new African starwort, *Dimorphotheca aurantiaca,* from L. E. Small of Tewksbury, and some very fine *Primula kewensis* from Mrs. Winthrop Ames of North Easton.

Roses attracted more than the usual attention. The prize for 25 Killarney went to Wm. H. Elliott; for 25 White Killarney also to Mr. Elliott; to Montrose Greenhouses for 25 Richmond; and to Brant Brothers, Utica, N. Y., for 25 Bridesmaid.

Violets were shown quite largely. For 100 Princess of Wales the competition was close; the first prize went to Dobbins & Shannon of Woburn; J. H. Newman & Son were a close second. For 100 Lady Hume Campbell the prize was won by H. F. Woods of Brookline. For 100 of any other variety the prize was awarded to A. F. Calder with Marie Louise.

J. H. Leach & Son of North Easton won the first prize for lily of the valley with some very good spikes.

The flower basket competition was as usual an unsatisfactory proposition for the committee. Hardly any of those shown were what good judges would like and many of our lady acquaintances could not give a satisfactory opinion about them or agree to any extent. The committee awarded Henry R. Comley's basket of roses the first. His basket looked nicely when just finished but before the day was out was miserably wilted. Edward MacMulkin's basket of Narcissi and pussy willows was very much admired.

Honorable Mention was made of a seedling azalea shown by Dr. C. G. Weld and named Mary Weld. It is very much like what we know as *Rhododendron fragrantissima.* Honorable Mention was made also of a display of orchids by Mrs. Oliver Ames which included extra fine specimens of *Lycaste Skinneri* with 10, 11, and 12 flowers each on the plants and very fine flowers and foliage.

A Vote of Thanks was given Mrs. Sarah C. Sears for a beautiful display of cut camellias. A. Zvolanek received Honorable Mention for a collection of sweet peas.

Thomas Roland made an excellent display of hard-wooded plants. His Acacias were quite a feature and his heaths were awarded a Silver Medal. He showed *Acacia heterophylla, A. longifolia, A. Drummondii,* and *A. armata;* also *Boronia megastigma,* the powerful perfume of which pervaded the hall.

Mrs. Frederick Ayer (George Page, gardener) made a beautiful display of neatly grown plants, mostly *Acacia heterophylla* and *Erica melanthera.*

The Messrs. Farquhar put up a very neat group in a rather awkward space on the floor of the Lecture Hall, and showed what experts could do. The plants were suitably grouped for a flat arrangement and included Cyclamen in colors, ferns, palms, Primulas in colors, and a general assortment of seasonable plants. The display received a First Class Certificate.

Mrs. Sarah C. Sears' display of Amaryllis (Wm. C. Ritchie, gardener) occupied a prominent position in the Lecture Hall. It was a fine lot of plants and showed good culture. A Gold Medal was awarded for it.

Edward MacMulkin made a striking display of *Anthurium Scherzerianum* and *A. Brownii,* as well as a group including plants of Pandanus, Azalea, Cytisus, Acacia, Mahernia, Rhododendron, Ficus, palms, and Baby Rambler roses.

A. Leuthy & Co.'s group, which took a Silver Medal, was a neatly grown lot of commercial varieties, including besides many unusual plants, palms — the true *Phoenix rupicola* and *P. Roebeliana* — very nice compact specimens, *Dracaena Sanderiana, Acacia heterophylla, Prunus triloba* (forced), *Araucaria Bidwellii, A. imbricata, A. glauca, A. excelsa, A. braziliana, Aucuba japonica* in fruit, *Adiantum* "Santa Catrina," a large-fronded variety, *A. picturatum, Aralia elegantissima, Nephrolepis Scholzellii, Ficus pandurata,* lilacs, and azaleas.

Lager and Hurrell received a Vote of Thanks for a collection of orchids; conspicuous among them being *Cattleya Schroderae, C. Harrisonae, Dendrobium Wardianum,* and several species of Phalaenopsis.

A Vote of Thanks was given William Whitman (Martin Sullivan, gardener) for a superb plant of *Cattleya Trianae,* and the same award was made to Julius Roehrs Co. for a display of orchids including several forms of Cypripedium, *Miltonopsis Bleui,* Cattleyas, and Laelias.

The Montrose Greenhouses received Honorable Mention for a dark pink sport of the Killarney rose and Honorable Mention was made of *Cattleya Schroderae alba* shown by Duncan Finlayson of Weld Garden.

Exhibits in March and April, 1910.

March 5 a Silver Medal was awarded to Dr. C. G. Weld for an exhibit of *Dendrobium nobile virginale,* a very fine form.

March 19 Mrs. Frederick Ayer made a very neat display of Acacias.

April 23 the Messrs. Farquhar exhibited under "No. 426 Wilson" a Clematis from seed collected by E. H. Wilson in China and supposed to be C. Armandi until it bloomed when it was found to be a far superior plant. The flowers are pure white, three and a half inches across, borne in axillary cymes, and very sweet scented. It flowers in midsummer naturally and so comes in at a time when Clematis is growing scarce or otherwise not in. It was awarded a First Class Certificate.

At the same time Walter Hunnewell exhibited *Azalea indica* (Wilson 5000 ft. alt.). The flowers are pale red, or but with slight variations we should say it resembled in the color of its flowers the Japanese *Azalea Kaempferi.* There is a difference however which we believe will become more pronounced as the plants grow older. The flowers of this *A. indica* are larger, flatter, and are slightly marbled where the blotch usually is. This season's growth has shown the habit to be very different from *A. Kaempferi* and it has great promise.

The Orchid Show, May 26–30, 1910.

The exhibition of orchids and other plants held in Horticultural Hall, Boston, on May 26–30, 1910, was the most remarkable assemblage of rare and beautiful orchids ever seen in the United

ORCHID SHOW, 1910. EXHIBIT OF JULIUS ROEHRS CO.

States and seldom equaled anywhere. The halls of the Society are not well adapted for exhibitions of this kind, especially where skill in display counts, or rather we would say there are few good positions, and some exhibitors are always handicapped in this respect. It is difficult for judges to compare groups where the positions of display are so different, so that the element of effectiveness of display never enters finally in a decision. Decisions have to be based on other predominating qualities such as the number of genera or the rarity of the plants.

The Julius Roehrs Company of Rutherford Park, New Jersey, took the first prize, $1000.00 and a Gold Medal, in Class No. 1, for a display of orchid plants in bloom, to fill a space of four hundred square feet, arranged for effect, embracing at least twenty orchid genera and bi-generic hybrids, and unlimited as to number of species, varieties, and hybrids. This was probably the most remarkable group of orchids ever put together in the United States, and in some respects anywhere else. The grouping was very good in the matter of keeping species together and in the massing of colors effectively; but for the wealth of material at the disposal of those who made the arrangement it was not as effective as it might have been. There is nothing so destructive of effectiveness of display as waste of material, which means in many cases redundancy of color, for too much is always worse than too little.

Notable plants in this group were *Cattleyi Mossiae aurea*; *C. Mossiae* Mrs. Julius Roehrs, pure white sepals and petals, lip splashed rosy purple and margined with white, a most beautiful variety; *C. Mossiae Reineckiana*; *C. Mossiae Gravesiana*, nearly white with yellowish throat; *Laelio-Cattleya luminosa*; L.-C. "Fascinator"; Brasso-Cattleya "Queen Alexandra," white; B.-C. Maroni, a very handsome hybrid of rich bronzy yellow tone and yellow throat; *Cypripedium callosum Sanderae*, an albino hybrid; *C. Emodi*, another valuable albino (*C. callosum* × *Sanderae* × *Lawrenceanum* var. *Hyeanum*); *C. Lawrenceanum*; *Coelogyne speciosa*, rare; Another beautiful albino is Cypripedium Rossetti (*Cypripedium insigne Sanderae* × *Lawrenceanum Hyeanum aureum*; *Odontoglossum eximea*, pale claret with white lipped sepals and petals; *O. Caulstonii*, densely spotted lilac margined white (*Alexandrae* × *Hardyana*); *O. album*, creamy white; *O. Reichenheimii*,

barred chocolate, pink lip, very large spike; *O. cirrhosum* × *crispum*, white with red spots, yellow disk, large spray; *Odontioda luditia*, almost wholly orange, reticulated yellow; *O. Charlesworthii*, brick red; *Pescatorea clabochorum*, very near Zygopetalum; and a fine group of *Dendrobium nobile virginale* raised from seed in England and very effective.

A complete list of the orchids exhibited by the Messrs. Roehrs is given herewith.

List of Orchid Plants exhibited by Julius Roehrs Co.

Angraecum sesquipedale
Bifrenaria Dallemagnei
Bollea coelestis
Brassavola Digbyana
Brassia verrucosa
Brasso-Cattleya × Heatonense
" " × Maronae
" " Queen Alexandra
" " × Veitchii
Brasso-Laelia × Gratrixiae
" " × Veitchii
Cattleya citrina
" × Dusseldorfii Undine
" Forbesii
" gigas
" Harrisoniana
" intermedia
" Jocasta
" Lawrenceana
" Mendelii
" " alba, Roehrs' variety
" Mossiae aurea
" " C. Brown
" " coerulescens
" " Mrs. J. Roehrs
" " Reineckiana
" " Rutherfordense
" " superba

Cattleya Schilleriana
" Skinneri
" " alba
" × suavior
" Warneri
" × William Murray
Chysis bractescens
Cochlioda sanguinea
Coelogyne tomentosa
Cymbidium insigne
" Lowianum
" Lowio-eburneum
Cypripedium barbatum
" " superbum
" bellatulum
" × Boadicea flamboyant
" callosum Sanderae
" caudatum
" Chamberlainianum
" concolor
" Curtisii
" Dayanum
" Dicksonianum
" × Euryades Black Empress
" Fairrieanum nigrum
" × Frau Ida Brandt
" insigne Luciana
" J. Muller
" × Kamilii
" × Kubele
" Lawrenceanum
" " Hyeanum
" × Maudiae
" niveum
" purpuratum
" × Pytho magnificum
" Rossetti
" Rothschildianum

Cypripedium Stonei
" × Swinburnei magnificum
" villosum
Dendrobium atro-violaceum
" Bensonae
" chrysotoxum
" clavatum
" crassinode
" crystallinum
" cupeta
" Dearei
" formosum giganteum
" infundibulum
" Jamesianum
" lituiflorum
" × melanodiscus
" nobile virginale
" Parishii
" Pierardi
" regium
" thyrsiflorum
" velutinum
" Wardianum
Epi-Cattleya Nebo
Epidendrum aromaticum
" cochleatum
" fragrans
" Godseffianum
" × kewense
" nemorale
" prismatocarpum
" radicans
" Randii
" vitellinum
Epi-Phronitis × Veitchii
Eria obesa
Laelia cinnabarina
" × cinnabrosa

Laelia purpurata
" tenebrosa
Laelio-Cattleya × Canhamiana
" " × Dominiana
" " × Lady Wigan
" " × luminosa
" " × Mercia
Lycaste Skinneri
Masdevallia Estradae
" Harryana
" ignea
Maxillaria Houtteana
" Sanderiana
Miltonia × Bleuana
" × Hyeana
" phalaenopsis
" vexillaria
" " leucoglossa
" " magnifica
Odontioda Bradshawiae
" Charlesworthii
" Lutetia
Odontoglossum album
" Cervantesii
" citrosmum
" crispum
" × excellens
" Harryanum
" hastilabium
" × loochristiense
" × Ossulstonii
" Pescatorei
" × Phoebe
" Reichenheimii
" × Rolfeae
" Rossii majus
" triumphans
" Venilia

Odontoglossum × Wilckeanum
Oncidium altissimum
" ampliatum majus
" concolor
" cornigerum
" flexuosum
" fuscatum
" leucochilum
" Marshallianum
" phymatochilum
" varicosum Rogersii
Phalaenopsis amabilis
" " Rimestadiana
" Cynthia
Pholidota monostachys
" variegata
Platyclinis Cobbiana
" latifolia
Renanthera Imschootiana
Sophronitis grandiflora
Trichopilia Hermisii
" tortilis
Vanda coerulea
" cristata
" teres
" tricolor

Charles G. Roebling's group (James Goodier, gardener), entered in Class No. 1, which took second prize, $500.00 and a Silver Medal, was badly handicapped in position. It was set up in the Lecture Hall in the form of an oriental bazar or maybe an indoor garden. However, it was impossible for anyone to see all the orchids without going through the maze of winding paths with many plants hanging overhead. In fact, it was an exhibit that could not be seen. In variety his group stood with the highest and it was this which won the exhibit the second prize. There were many unusual kinds and some rare ones, but few remarkable specimens.

ORCHID SHOW, 1910. EXHIBIT OF CHARLES G. ROEBLING

ORCHID SHOW 1910. EXHIBIT OF W. A. MANDA

Unusual kinds noted were *Brasso-Cattleya Jessopii; B.-C. Veitchii*; *Cattleya maxima*; *Laelio-Cattleya Arnoldiana*; *L.-C. Baden-Powellii*; *L.-C. Canhamiana*; *Odontoglossum Rolfeae*; *Odontioda Bradshawiae*, rosy flowers with white margins, very pretty. In fact all these hybrid Odontoglossums are valuable in respect to color, being distinct additions.

Besides the above named Odontioda there were *O. Goodsoniae, O. Charlesworthii*, and *O. Vuylstekeae*, all with rose tinted flowers. We noted also *Oncidium triumphans*; *O. fuscatum*, violet and white; *Chysis bractescens*; *Miltonia Roezlii*; *Renanthera Imschootiana*, a pretty little thing with reddish flowers and very rare; *Brassavola Digbyana* and several of its hybrids; *Anguloa modestans*, lovely white-flowered scapes of spurred flowers; *Vanda coerulea*; *Lelio-Cattleya* C. G. Roebling, handsome, with white-tinted sepals and petals and big violet blotch on lip; and *Dendrobium Jamesianum*, white with yellow throat.

Mr. Goodier has furnished a complete list of the orchids in his exhibit as follows:

List of Orchids exhibited by charles g. roebling.

Angraecum articulatum
" citratum
" Leonis
Brassavola Digbyana
Brassia brachiata
" maculata
" verrucosa
" species
Brasso-Cattleya Jessopii
Brasso-Laelia Veitchii
Broughtonia sanguinea
Calanthe Masuca
" Regnieri
Cattleya citrina
" Forbesii
" Gaskelliana × Mossiae
" gigas

Cattleya Harrisoniae
" intermedia
" Lawrenceana
" " × Mossiae
" Loddigesii
" maxima
" Mendelii
" Mossiae
" Schroderae
" Skinneri
" Warneri
Chysis bractescens
Cochlioda Noetzliana
Coelogyne cristata alba
" Dayana
" Massangeana
" speciosa
Cymbidium eburneum
" Lowianum
Cypripedium barbatum Warneri
" bellatulum
" callosum
" concolor
" Curtisii
" Desdemona
" Druryi
" Elliottianum
" exul × Boxallii
" gigas
" " Corrudean Hall
" hirsutissimum
" illustre
" Io grandis
" John D. Adams
" Lawrenceanum
" Lowianum
" Mons. de Curte
" niveum

Cypripedium Philippinense
" Pollettianum
" porphyrochlamys
" Rothschildianum
" Stonei
" U. S. Grant
" villosum
" " × bellatulum
" W. H. Harrison
" Yvette superbum
" unnamed hybrids
Dendrobium atro-violacum
" Barbrigium
" bigibbum
" chrysotoxum
" crassinode
" crystallinum
" Dalhousieanum
" Dearei
" densiflorum
" Devonianum
" Findlayanum
" formosum giganteum
" Jamesianum
" Johannis
" × murrhiniacum
" nobile
" " Ashworthianum
" " virginalis
" Parishii
" phalaenopsis Schroderianum
" superbiens
" thyrsiflorum
" Wardianum
Diacrium bicornutum
Epi-Cattleya Guatemalensis
" Nebo
Epidendrum aurantiacum

Epidendrum elatius
" O'Brienianum
" Oncidioides
" radicans
" Stamfordianum
" vitellinum
" species
Laelia Boothiana
" cinnabarina
" elegans
" Latona
" purpurata
" tenebrosa
Laelio-Cattleya Arnoldiana
" Baden-Powellii
" Canhamiana
" C. G. Roebling
" cinnabarina × xanthina
" Epicasta
" Eudora
" fascinator magnificum
" Gottoiana
" Lucia superba
Lycaste aromatica
" Skinneri
Masdevallia Chimaera
" Harryana
Maxilliaria tenuifolia
" Turneri
Miltonia Bleueana magnifica
" Roezlii
" spectabilis
" vexillaria
Odontioda Bradshawiae
" Charlesworthii
" Goodsoniae
" Vuylstekeae
Odontoglossum × Andersonianum

Odontoglossum ardentissimum
" citrosmum
" cordatum
" × crispo-Harryanum
" crispum
" elegans
" excellens
" × Harryano-triumphans
" maculatum
" Pescatorei
" Rolfeae
" Rossii majus
" triumphans
" unnamed hybrids in variety
Oncidium ampliatum majus
" barbatum
" Carthaginense
" concolor
" crispum
" flexuosum
" fuscatum
" Gardneri
" Kramerianum
" Marshallianum
" ornithorynchum
" papilio
" phymatochilum
" Reichenheimii
" sphacelatum
Phalaenopsis amabilis
" Rimestadiana
" grandiflora
" Lueddemanniana
" Sanderiana
Platyclinis latifolia
Renanthera Imschootiana
Selenipedium Brownii
" cardinale

Selenipedium caudatum
" grande
" Roezlii
" Sedeni
Sobralia macrantha alba
" Wilsoniana
Sophro-Cattleya Psyche
Thunia Wrigleyana
Tricopilia coccinea marginata
Vanda Bensoni
" coerulea
" coerulescens
" Denisoniana
" suavis
" teres Andersonii
" " aurorea
" " candida
" tricolor
Zygopetalum crinitum

Lager & Hurrell of Summit, New Jersey, took the third prize in Class No. 1, ($250.00 and a Bronze Medal). The display was well placed and creditably put up but the owners were handicapped by delay and did not have time to do themselves full justice. It contained a large number of plants and a few large specimens. It was this lack of specimen plants which went against the display in making a decision. Large specimens are needed to make a large exhibit effective. Good plants noted were *Cypripedium bellatulum, Cattleya Warneri, C. labiata, Sobralia macrantha alba, Phalaenopsis amabilis, Dendrobium formosum, Coelogyne Dayana, Odontoglossum citrosmum,* and *Laelia grandis* var. *tenebrosa.*

In the center of their group was a very rare specimen of *Cattleya gigas alba* which was awarded a Gold Medal. *Laelio-Cattleya* G. S. Ball and *L.-C. callistoglossa* were especially notable plants.

A list of the orchids exhibited in their collection is as follows:

List of Orchids exhibited by Lager & Hurrell.

Ada aurantiaca
Aerides violaceum
Angraecum Scottianum
Bifrenaria tyrianthina
Brassavola fragrans
Brassia Lawrenceana
" " longissima
" verrucosa
Broughtonia sanguinea
Bulbophyllum Lobbii
Calanthe Veitchii
Cattleya citrina
" Gaskelliana
" gigas
" " alba
" Harrisoniae
" × interglossa
" intermedia alba
" labiata
" Mendelii
" Mossiae
" " Reineckiana
" Schroderae
" Skinneri
" " rosea
" speciosissima
" Trianae
" Warneri
Cochlioda Noetzliana
Coelogyne Dayana
" ocellata maxima
" tomentosa
Cypripedium albo-purpureum
" barbato-Mastersii
" bellatulum
" Browni leucoglossum

Cypripedium calurum
" caudatum
" conchiferum
" Creon
" Cunia
" Curtisii
" " purpuratum
" Dayanum
" dilectum
" Dominianum
" Euryale
" Harrisianum
" insigne (montana var.)
" Lawrenceanum
" leucorrhodum
" luridum
" Lowii
" Mdme. Barbey
" Mrs. W. A. Roebling
" nitidissimum
" Sedenii
" " candidulum
" superbiens
" superciliare
" Swanianum
" tenellum
" tonso purpuratum
" Uranus
" Urgandae
" villosum
Dendrobium albosanguineum
" anceps
" Bensonae
" Cambridgeanum
" Cassiope
" chrysodiscus
" chrysotoxum
" clavatum

Dendrobium crassinode
" crystallinum
" Dalhousieanum
" Dearie
" densiflorum
" Devonianum
" Falconeri
" Farmeri
" fimbriatum var. oculatum
" Findlayanum
" formosum
" infundibulum
" Jamesianum
" nobile
" " Mrs. Larz Anderson
" Parishii
" phalaenopsis
" Pierardi
" Rolfeae
" thyrsiflorum
" Wardianum
Epi-Cattleya Nebo
" Orpetiana
Epidendrum Burtoni
" O'Brienianum
" rhizophorum
" stenopetalum
" vitellinum
" Wallisii
" species
Epi-Phronitis × Veitchii
Laelia cinnabarina
" " × xanthina
" elegans
" purpurata Russelliana
" " Schroderae
" " Williamsii
" tenebrosa

Laelio Cattleya callistoglossa
" " eximea
" " G. S. Ball
" " species
Lycaste aromatica
" Skinneri
Masdevallia Harryana lutea
" " (scarlet).
" Veitchii
Maxillaria nigrescens
" Sanderiana
" tenuifolia
Miltonia Bleueana
" flavescens
" phalaenopsis
" Roezlii
" " alba
" vexillaria
" " roseum
Odontoglossum Andersonianum
" citrosmum
" crispum
" Hastilabium
" Pescatorei
" Reichenheimii
" Rossii majus
Oncidium ampliatum
" barbatum
" concolor
" crispum
" flexuosum
" fuscatum
" graminifolium
" Kramerianum
" Marshallianum
" sarcodes
" splendidum
" thymatochilum

Oncidium tigrinum unguiculatum
" varicosum
" species
Phalaenopsis amabilis
" Cynthia
" Lueddemanniana
" Sanderiana
Platyclinis Cobbiana
Pleurothallis
Sobralia macrantha alba
Sophronitis grandiflora
Vanda Amesiana
" coerulea
" teres
" " Andersonii
" " tricolor
Warscewiczella discolor

W. A. Manda of South Orange, New Jersey, was a fourth entry in Class No. 1, but no prize was awarded it. It was probably the most tastefully arranged display of the four. There is no question to whom the first prize would have gone if this exhibit had had material enough.

Class No. 2 was for a display of orchid plants in bloom to fill 150 square feet, arranged for effect, embracing ten orchid genera and bi-generic hybrids, and unlimited as to number of species, varieties, and hybrids.

Entries in this class were made by Ernest B. Dane of Brookline and Walter Hunnewell of Wellesley. Both were badly placed in the Lecture Hall and neither could do himself full justice. The arrangement was very similar and the competition close. The bi-generic hybrids won the first prize for Mr. Dane ($200.00 and a Gold Medal). The second prize was awarded to Mr. Hunnewell ($100.00 and a Silver Medal). Mr. Hunnewell's lot had some very fine Miltonias and was the most effective group.

Appended are lists of the plants shown by these two exhibitors in Class 2.

List of Orchids shown in Class 2 by E. B. Dane.

Angraecum modestum
Brasso-Cattleya × Mariae (B. Digbyana × C. Warneri)
" " × Maronae (B. Digbyana × C. Mendelii)
" " × Thorntoni (B. Digbyana × C. Gaskelliana)
" " × Veitchii (B. Digbyana × C. Mossiae)
Cattleya × Claesiana (intermedia × Loddigesii)
" Gaskelliana
" gigas
" maxima
" Mendelii
" Mossiae
" " Reineckiana
" Schroderae
" Skinneri
" Warneri
Coelogyne Massangeana
Cymbidium Lowianum
Cypripedium bellatulum
" concolor
" Curtisii
" Druryi
" exul
" Gowerianum
" Lawrenceanum
" niveum
" Rothschildianum
Dendrobium Bensonae
" chrysotoxum
" Dalhousieanum
" densiflorum
" Jamesianum
" nobile
" phalaenopsis Schroderianum
" thyrsiflorum
" Wardianum
Epidendrum prismatocarpum

Epidendrum Randii
" not named
Laelia × Latona (cinnabarina × purpurata)
" purpurata
" × Ragotiana (cinnabarina × grandis)
" tenebrosa grandis
Laelio-Cattleya General French (L. cinnabarina × C. Trianae)
" " G. S. Ball (L. cinnabarina × C. Schroderae)
" " highburiensis (L. cinnabarina × C. Lawrenceana)
Laelio-Cattleya × Lucia (L. cinnabarina × C. Mendelii)
" " × Phoebe (L. cinnabarina × C. Mossiae)
Masdevallia coccinea
" ignea
Miltonia vexillaria
Odontoglossum crispum vars.
Oncidium excavatum
" Kramerianum
" leucochilum
Phalaenopsis amabilis
" Schilleriana
Vanda suavis

List of Orchids shown in Class 2 by Walter Hunnewell.

Calanthe Regnieri
Cattleya gigas
" intermedia
" Mendelii
" Mossiae
" " Reineckiana
" " Victoria
" Skinneri
" Warneri
Cymbidium Lowianum
Cypripedium Boxallii
" Curtisii
" " exquisitum

Cypripedium Swanianum
" villosum
Dendrobium aggregatum majus
" nobile
" " Cooksonii
" " murrhiniacum
" " nobilius
" " rubrum
" " Tollianum
" " Victoria Regina
" Pierardi
Epi-Cattleya Nebo
Epidendrum O'Brienianum
Laelia cinnabrosa
" elegans
" " Schilleriana
" majalis
" purpurata
Laelio-Cattleya G. S. Ball
Masdevallia Harryana
Miltonia vexillaria
" " H. H. Hunnewell
Odontoglossum Cervantesii
" crispum
" Rolfeae
" Rossii majus
Oncidium crispum
" papilio majus
Vanda Denisoniana
" tricolor

The Gold Medal offered in Class No. 4 for the best seedling orchid plant not previously exhibited in the United States was awarded to the Julius Roehrs Co. for *Cattleya Dusseldorfii,* var. Undine, white, one of the rarest and best in the exhibition.

Class No. 5 was for the largest and best display of cut orchid blooms, arranged with ferns or other foliage. The first prize, a Gold Medal and $100.00, was won by Joseph Manda of West

Orange, New Jersey, with an elegant display in which Cattleyas predominated. Bromelies were used to good advantage in the formation of a sort of fountain display. The design was most graceful, was nicely kept up, and won besides many compliments throughout the exhibition. A complete list of Mr. Manda's exhibit is given herewith.

List of Orchid Blooms shown by Joseph Manda.

Broughtonia sanguinea
Bulbophyllum lilacinum
" Lobbii
Calanthe discolor
Catasetum viridiflorum
Cattleya citrina
" Gaskelliana
" gigas
" " Sanderiana
" granulosa
" guttata
" intermedia
" Lawrenceana
" Mendelii
" Mossiae
" " Hardyana
" Schroderae
" Skinneri
" " alba
" speciosissima
" Warneri
" " marmorata
Cirrhopetalum Lendyanum
Coelogyne cristata alba
" speciosa
Cymbidium Devonianum
Cypripedium Albanense
" Almum
" " atro-purpureum

Cypripedium Ashburtoniae
" " var.
" barbatum
" " illustre
" " superbum
" " Warneri
" Brysa
" calurum
" " Rougieri
" Chlorops
" Colmanii
" " nigrum
" conchiferum
" concinnum
" Creon
" Curtisii
" Dauthieri
" Dayanum
" Dominianum
" Euryale
" exul
" Frau Ida Brandt
" Gandianum
" Godseffianum
" Gowerianum
" Harrisianum
" " superbum
" Hera
" " Fautzianum
" hirsutissimum
" insigne
" Lawrenceanum
" longifolium
" Louryanum
" Madiotianum
" Mastersii
" Pavonianum
" " inversum

Cypripedium Priapus
" Robinsonianum
" superciliare
" Swanianum excelsus
" tenellum
" tonso-barbatum
" tonsum
" Uranus
" villosum
" Weidlichianum
Dendrobium barbrigium
" bigibbum
" calceolus
" chrysotoxum
" Leechianum
" nobile
" thyrsiflorum
Epidendrum anceps
" cochleatum
" kewensis
" longifolium
" palleaceum
" vitellinum majus
" Watsonii
" xanthinum
" species
Eria gigantea
Galeandra Devoniana
Laelia cinnabrosa
" grandis tenebrosa
" purpurata
" " Williamsii
Laelio-Cattleya Canhamiana
" " Clive
" " Martineti
" " hybrid
Lycaste aromatica
" Harrisoniae

Masdevallia coccinea
" ignea
Maxillaria angustifolia
" Galatea
" Henchmanni
" tenuifolia
Miltonia flavescens
" phalaenopsis
" vexillaria
Odontoglossum citrosmum
" cordatum
" Rossii
Oncidium ampliatum
" concolor
" cornigerum
" fuscatum
" graminifolium Wrayii
" Kramerianum
" longipes
" Marshallianum
" ornithorynchum
" Reichenheimii
" sphacelatum
" " Banrei
Pescatorea cerina
Phalaenopsis amabilis
" " Rimestadiana
" Cornu-cervi
" Lueddemanniana
Platyclinis latifolia
" species
Pleurothallis gelida
Polystachya cerea
" rufinula
Sobralia macrantha
Spathoglottis aureo-Viellardii
Thunia Marshalliana
Trigonidium Amesianum

Trigonidium species
Vanda Bensoni
" suavis
" teres
" " Andersonii
" tricolor
Warscewiczella discolor
Zygopetalum Gautieri

The second prize (a Silver Medal and $50.00) in Class No. 5 went to W. A. Manda of South Orange, New Jersey. Mr. Manda's list follows:

List of Orchid Blooms shown by W. A. Manda.

Brassia verrucosa
Cattleya gigas, 6 var.
" Harrisoniae
" " violacea
" Loddigesii
" Mendelii, 14 var.
" Mossiae, 12 var.
" Trianae
" Warneri
" " superba
Cymbidium Lowianum
" " aureum
Cypripedium Ashburtoniae var. expansum
" callosum
" Curtisii
" Dauthieri
" Lawrenceanum
" " superbum
" Leeanum
" villosum
" " aureum
" 12 seedling hybrids
Dendrobium crassinode

Dendrobium Findlayanum
" formosum
" " giganteum
" Parishii
" phalaenopsis
" " Schroderianum
" Statterianum
" Wardianum
" " Lowii
Epidendrum cochleatum
Laelia cinnabarina × xanthina
" elegans
" " Schilleriana
" " var.
" purpurata, 6 var.
Laelio-Cattleya (L. cinnabarina × C. Schroderae)
Lycaste Deppei
" Skinneri
Miltonia Roezlii alba
" vexillaria
Odontoglossum citrosmum
" " album
" " roseum
" crispum, 6 var.
" Hallii
" luteo-purpureum
" Pescatorei, 4 var.
Oncidium ampliatum majus
" concolor
" papilio
" varicosum
" " Rogersii
Phalaenopsis amabilis
" " Rimestadiana
" grandiflora

In Class No. 6 a Gold Medal was offered for the best collection of cut orchids of new varieties not before exhibited in the United States. This was won by W. A. Manda with *Cattleya Mossiae*

Hardyana, striped pink and white; *Cattleya Mossiae* "American Flag"; *Cattleya Mendelii* "American Beauty," white striped and tipped; *Cattleya gigas Mandaiana*; and eight distinct crosses of Odontoglossums.

In Class No. 14 the first prize of a Silver Medal and $50.00 for six orchid plants, distinct genera, went to Julius Roehrs Co. with *Cypripedium Curtisii, Cattleya Mossiae, Dendrobium virginale, Phalaenopsis Rimestadiana, Miltonia vexillaria,* and *Odontoglossum Pescatorei.*

The second prize in this class — a Bronze Medal and $25.00 — was awarded to Mrs. B. B. Tuttle of Naugatuck, Connecticut, (M. J. Pope, gardener) for *Cymbidium Lowianum, Coelogyne asperata, Broughtonia sanguinea, Odontoglossum crispum, Cattleya citrina,* and *Phalaenopsis Aphrodite.*

In Class No. 15 for three orchid plants, distinct genera, the first prize of a Silver Medal and $25.00 went to W. A. Manda with *Cattleya Mossiae, Dendrobium Findlayanum,* and *Odontoglossum citrosmum.* The second prize of a Bronze Medal and $15.00 was won by J. T. Butterworth of South Framingham with *Cattleya Mossiae, Miltonia vexillaria,* and *Odontoglossum Ruckerianum.*

In Class No. 16, for three distinct Cattleyas, the first prize of a Silver Medal and $25.00 was won by W. A. Manda with *C. Gaskelliana, C. gigas,* and *C. Mossiae.*

In No. 17, for best specimen Cattleya, any species, the first prize, a Silver Medal, went to J. T. Butterworth for *Cattleya Mossiae* var. *Reineckiana,* and the second prize, a Bronze Medal, was also awarded him for *Cattleya Mossiae* "Mrs. J. T. Butterworth."

In No. 18, for best specimen Cymbidium, the first prize, a Silver Medal, was awarded to Weld Garden, Brookline, Duncan Finlayson, Superintendent, for *Cymbidium Lowianum.* The second prize, a Bronze Medal, went to W. A. Manda for the same species.

In No. 19, for three distinct Cypripediums, the first prize, a Silver Medal and $15.00, went to Julius Roehrs Co. with *C. callosum Sanderae, C. caudatum,* and *C. Hyeanum.*

In No. 20, for specimen Cypripedium, the first prize went to Dr. C. G. Weld, of Brookline, (Wm. C. Rust, gardener) for a very fine plant of Cypripedium Lawrenceanum.

In No. 21, for specimen Dendrobium, a Silver Medal was awarded

to Weld Garden for *D. chrysotoxum,* and a Bronze Medal to Julius Roehrs Co. for *D. crassinode.*

In Class No. 25, for six Miltonias, the first prize, a Silver Medal and $25.00, went to Walter Hunnewell for *M. vexillaria*; and the second prize, a Bronze Medal and $15.00, was awarded J. T. Butterworth with the same species.

In No. 26, for specimen Miltonia, the first prize went to J. T. Butterworth for *M. vexillaria* and the second to Walter Hunnewell for the same.

In No. 27, for six Odontoglossums, the first was awarded Julius Roehrs Co. for *O. Andersonianum, O. ardentissimum, O. cordatum, O. crispum,* and *O. Pescatorei.*

In No 28, for specimen Odontoglossum, a Silver Medal was awarded Walter Hunnewell for *O. Rolfeae.*

In No. 29, for specimen Oncidium, first was awarded Mrs. B. B. Tuttle with a large plant of *O. sphacelatum,* and second to Julius Roehrs Co. with *O. ampliatum majus.*

In No. 32, for specimen Vanda, first went to Howard Gould of Port Washington, New York, Harry Turner, gardener, for *V. coerulea.*

In Class No. 36, for specimen orchid, any genus and not otherwise provided for in the schedule, a Silver Medal was awarded Col. Charles Pfaff, George Melvin, gardener, for a grand plant of *Brassia verrucosa,* and a Bronze Medal to Mrs. B. B. Tuttle with *Phalaenopsis Lueddemanniana.*

A special prize, a Gold Medal, was awarded Julius Roehrs Co. for a group of Brasso-Cattleya hybrid orchids.

For the best specimen orchid on exhibition a Gold Medal was awarded Julius Roehrs Co. with *Cattleya Mossiae.*

A special prize, a Gold Medal, was awarded Lager & Hurrell for a unique specimen of *Cattleya gigas alba.*

A special prize of a Silver Medal and $25.00 was awarded J. T. Butterworth for a group of orchids, and a Bronze Medal and $20.00 was awarded Mrs. J. L. Gardner (Wm. Thatcher, gardener) for a group of orchids arranged with other plants.

G. L. Freeman of Fall River was awarded Honorable Mention for a lot of collected orchids.

Besides orchids there was a large display of other choice plants.

R. & J. Farquhar & Co. were awarded a Gold Medal for a very interesting collection of Chinese plants grown from seeds collected in China by E. H. Wilson, the botanical explorer. A list of the plants exhibited is given herewith together with the original collector's numbers. Many of them have not been identified as yet and will probably prove to be new species.

The Messrs. Farquhar showed also a few interesting plants from Europe and elsewhere of which mention is made as follows:

A new seedling Iris, a cross between *Iris Kaempferi* and *I. pallida dalmatica,* the characters of both parents very plainly shown. This was awarded Honorable Mention as was also a summer-flowering Pelargonium "Oster Gruss"; and the same award was made for Geranium Mrs. Charles Pfaff. A First Class Certificate was given for the Begonia Pink Beauty in this collection.

List of Chinese Plants Exhibited by R. & J. Farquhar & Co.

181	
497	
257	Acer
339	"
434	"
434	"
424	" Henryi
347	Actinidia sinensis
391	Berberis
557	"
930	"
1038	"
1083	"
1137	"
1284	"
387	Betula alnoides
439	Calcycarpa japonica
681	Carcococea
1130	"
636	Catalpa vestita

444 Celtis
68 Cherry
95 Clematis Armandi
338 " grata
587 " montana rubens
426 " quinquefoliata
383 "
402 "
403 "
403a "
427 "
655 "
668 "
672 "
679a "
425 Clerodendron
12 Corearia nepolensis
133 Cornus contraversa
140 " macrophylla
136 " paniculata
153a Cotoneaster
217 "
227 "
327 "
334 "
481 "
662 Crataegus
570 Deutzia
762 Diervillea versicolor
441 Diospyrus
622 Emmenoptus Henryi
247 Evodia
387 "
397 Exochorda
487 Idesia polycarpa
325 Itea ilicifolia
576 Lespedeza
1075 Ligustrum

1075a Ligustrum
1290 "
254 Lonicera Henryi
457 " Mackii var. prodocarpa
14 " Standishii var. lancifolia
500 Paliothyrsis chinensis
484 Phatinia crenata serrata
905 Pinus
1378 "
1387 "
1390 "
1395 "
437 Polygonum multiflorum
1213 Potentilla fruticosa
137 Rhamnus
871 Rubus
1070 Schizandra
490 Spiraea Henryi
568 " Veitchii
195 "
499 "
372 Styrax
518 Trachelosperum
790 Vitex
126 Vitis chinensis
126a " "
215 " "
454 " Henryana
464 " "
124 " Paederia
235 " Thomsoni
150 "
170 "
242 "
440 "
1046a "
1351 "

Thomas Roland was awarded a Gold Medal for the best species of stove or greenhouse plant in bloom, not previously exhibited in the United States. The plant exhibited was a new and very handsome Japanese Hydrangea, of a peculiar shade of pink, with incurved florets and stiff flowers and truss.

For a group of flowering and foliage plants arranged for effect the first prize, a Gold Medal and $100.00, went to Julius Roehrs Co. with a superb collection of what we should call "commercial varieties." Notable plants in this group were Heliconia Edwardus Rex, very dark purple; *H. illustris; H. rubicunda,* violet tinted; *Dracaena Victoriae,* striped yellow; *D. Doucetti*; *D. Godseffiana*; *Phoenix Roebelini*; *Kentia Sanderiana*; Anthurium "Bon Soir," brick red; *Phyyllotaenium picturatum*; *Ficus pandurata*; Dieffenbachias; Azaleas; Crotons; Pandanus; and many others.

In Edward MacMulkin's group the notable plants were *Cattleya Mossiae, C. Warneri alba, Anthurium Scherzerianum, A. Brownii,* Stephanotis, Abutilons, Pelargoniums, Dracaenas, Crotons, Pandanus, Hydrangeas, palms, and ferns.

William A. Riggs' group had Clerodendrons, Hydrangeas, ivy-leaved Pelargoniums, Cattleyas, Calceolarias, Godetias, Aralias, Anthuriums, Crotons, Dracaenas, roses, including the Tausendschon, palms, ferns, and marguerites, all very tastefully set up.

In Class No. 10 a Gold Medal was offered for the best species of coniferous plant, not yet disseminated, likely to be hardy in Massachusetts. This was awarded to W. A. Manda of South Orange, New Jersey, for an unnamed species of Juniperus.

A First Class Cultural Certificate was given the Waban Rose Conservatories for a handsome vase of rose White Killarney, and a First Class Certificate was awarded Thomas Roland of Nahant for a collection of new Hydrangeas. Honorable Mention was made of the Croton Fred Sander exhibited by Julius Roehrs Co. and of Malmaison carnations shown by Howard Gould of Port Washington, New York.

Gold Medals were awarded Robert Cameron of the Botanic Garden of Harvard University for superior cultivation of stove and greenhouse plants, and Prof. C. S. Sargent of Brookline (Charles Sander, gardener) for a collection of azaleas.

Silver Medals were awarded Charles Sander for a collection of

cut blooms of tree peonies; William Sim of Cliftondale for a collection of sweet peas; Henry A. Dreer of Philadelphia for hybrid tea roses; Duncan Finlayson of Weld Garden, Jamaica Plain, for a group of Canterbury bells arranged for effect; and to L'Etablissement Horticole le Lion of Gand, Belgium, for a display of *Cocos Weddelliana.*

A Bronze Medal was awarded Norris F. Comley of Lexington for a collection of sweet peas.

The Peony Exhibition, June 14 and 15.

The Peony Show was held June 14 and 15 and was hardly up to the average on account of the uncertainty of date.

Mrs. McKissock's group included an extra good selection. Some of the best were La Tendresse, white; Eugene Verdier, pink; G. G. Hill, deep rose; Saucy Lass, deep pink, yellow center; La Fontaine, pink guard petals, yellow center; Belle Chatelaine, light pink, tinted center; La Petite Reine, pink; La Tulipe, light pink; Festiva maxima; Adolphe Rousseau, deep red; George Washington, red, yellow center; La Rosiere, sulphur, white center; Ruy Blas, pink; Mme. Calot, silvery white; Carnea Elegans, pink, yellow tinted; La Fayette, pink; Alfred de Musset, silvery, tinted white; Mme. Guyot, white guard petals, yellow center; Dorchester, white, yellow center; Auguste Dessert, light pink; Mons. Boucharlataine, pink; Grazella, white, feathered center; Bunch of Perfume; and several others.

G. H. Peterson of Fair Lawn, New Jersey, showed some very fine blooms; among them were noted Auguste Villaume, pink; Constant Devred, deep reddish pink; Mathilde de Rasseneck, light pink; Mons. Krelage, large, pink; Albert Crousse, light pink; Marie Lemoine, white, light yellow center; Marie, light pink; Avalanche, white; Mme. Lemoine, light pink; and Mireille, white. T. C. Thurlow & Sons Co. of West Newbury also showed some good flowers and took several prizes. They took the prize for a vase of 25 blooms of any other color with Mme. Coste. S. G. Harris of Tarrytown, New York, took the prize for a vase of 25 blooms light pink with Baroness Schroeder. Vase of 25 blooms

rose was won by G. H. Peterson with Mad. de Galhau, as was also vase of 25 blooms red or crimson with Rubra Superba.

The prize for the largest and best display of peonies went to R. & J. Farquhar & Co. and the specimen bloom prize to G. H. Peterson with Mad. de Galhau.

The prize for the best collection of 12 named varieties was awarded William Whitman (Martin Sullivan, gardener) with Lady Bramwell, pink; Dr. Kennion, pink; Camille Calot, pink; Alex. Dumas, single, pink; Lady Carington, single, red; and Louis Van Houtte, deep red. These were the best.

It would be impossible to give descriptions of Mr. Shaylor's superb collection to which was awarded a well-deserved Silver Medal. The varieties exhibited were Faust, Boule de Neige, Mme. Calot, Souvenir de Gaspard Calot, Triomphe de l' Exposition de Lille, Duc de Wellington, Duchesse de Nemours (Calot), Venus, Marguerite Gerard, Mme. de Verneville, Mme. Crousse, Mme. Boulanger, Mons. Dupont, Bastien Lepage, Mad. de Vatry, Mdlle. Rousseau, Marie Crousse, Octave Demay, Mme. Emile Lemoine, Suzanne Dessert, Mad. de Galhau, Grandiflora Lutescens, Mme. Emile Galle, Germaine Bigot, Adolphe Rousseau, Armand Rousseau, Aurore, La Fayette, Mme. Barillet Deschamps, Mme. de Treyeran, Mme. Lemoinier, Marcelle Dessert, Mireille, Mons. Martin Cahuzac, Neptune, Therese, Pierre Dessert, Asa Gray, Carnea Triumphans, Marie Jacquin, Eugene Verdier, Baroness Schroeder, James Kelway, and Coronation.

R. & J. Farquhar's display of herbaceous plants was awarded a Silver Medal. It contained single and double Pyrethrums, *Iris pallida dalmatica*, *Baptisia australis*, white lupines, foxgloves, veronicas, and grasses.

A Silver Medal was awarded Mrs. Frederick Ayer (George Page, gardener) for a display of fuchsias. A particularly handsome one was Elm City; others were Gloire des Marches, double white; Lustre, red; Black Prince Trophe, double purple; Fulgens; and the old Rose of Castile. The same exhibitor had a fine lot of specimen Rex begonias.

William Whitman (Martin Sullivan, gardener) had a tasteful display of foxgloves, irises, and peonies.

The Eastern Nurseries made a display of herbaceous plants

comprising *Iris sibirica, Clematis recta, Papaver orientale* in variety, *Phlox carolina, Centaurea dealbata, Veronica alpestris, Campanula persicifolia, Spiraea filipendula, Valeriana officinalis, Armerias,* and foxgloves.

The Old Town Nurseries of South Natick received a Vote of Thanks for *Iris orientalis* "Snow Queen."

The display of the Blue Hill Nurseries of South Braintree included a very fine lot of double and single Pyrethrums; the new *Lupinus Moerheimii,* a remarkably charming soft pink variety; *Phlox divaricata Laphami,* fine deep blue; *Ononis rotundifolia,* reddish pink pea-like flowers, an English wild plant commonly called the "rest harrow"; and *Gypsophila repens.*

Mrs. E. M. Gill had some nice Conrad Meyer roses, Carmine Pillar roses, candytuft, peonies, and stocks.

Special Exhibits during the Summer.

On June 25 William Whitman was awarded a Silver Medal for a superb collection of seedling Delphiniums. At the same time Honorable Mention was given Charles W. Parker for a collection of roses.

On July 2 William Whitman of Brookline received a Silver Medal for a grand display of Japanese irises, and on the same date Mrs. J. L.Gardner of Brookline was awarded a Silver Medal for a display of Japanese irises and Phlox Mme. Lingard.

On August 31 Mr. Whitman made an interesting display of phloxes, dahlias, and annuals; Mrs. E. M. Gill, a collection of annuals and other flowers; Mrs. Gardner, a very good collection of annuals; and B. Hammond Tracy of Wenham, a collection of gladioli for which he received Honorable Mention.

The Autumn Exhibition.

The annual Autumn Exhibition, generally known as the Dahlia Show, was held on September 23. It brought out the usual number of dahlia enthusiasts, but on looking over the tables we found nothing especially new. The lists were thoroughly gone over in last year's report and will not be repeated here.

The principal exhibitors in the "Show," "Decorative," and "Cactus" classes were A. E. Johnson, W. D. Hathaway, Herman Winter, J. K. Alexander, and Mrs. L. A. Towle.

The Messrs. Farquhar put up a very interesting and beautiful lot of the new "Peony-flowered" kinds prominent among them being Hollandia, pink; Solfatarre, red; King Leopold, yellow; Garibaldi, dark red; Paul Kruger, red, lighter shadings; and Baron de Graney, white. Other especially good dahlias noted were Semiramis (Decorative), pink with yellow shadings; Ajor (Cactus), salmon red; John Walker (Show), white; and Lemon Giant (Decorative).

The Henry A. Dreer Co. of Philadelphia made an attractive display of water lilies, and B. Hammond Tracy of Wenham put up a neat dinner table decorated with gladiolus "Dawn," a lovely shell pink variety. Mr. Tracy also made an attractive display of gladioli among them being especially worthy of note the following: Independence, salmon rose, deeper eye; Liberty, red, banded with light yellow; Seedling No. 24, deep red banded with white, Lemoine type; Sunrise, light yellow, not large flowered; Jean Findulay, white, tinted deeper throat; Purity, tinted white; Harvard, dark red; Kathryn, magenta; Princess Sandersoni, white; Seedling No. 8, satin buff, banded yellow, deeper eye; Seedling No. 78, rose, banded lemon, deeper eye; McIntosh, deep red; Seedling No. 1, light pink flushed, deeper throat; Mrs. Frances King, satin red; Dawn, flushed pink, large, deep eye; and Fireside, large, red streaked.

Mrs. J. L. Gardner had some good specimen ferns as *Adiantum polyphyllum*, *A. Wiegandi*, and *Davallia fijiensis*, and Thomas Watt sent a fine plant of *Oncidium varicosum Rogersii*.

The Messrs. Farquhar had their new double tuberous begonia Alice Manning which was awarded Honorable Mention. It has handsome pendulous yellow flowers. They also received a Vote of Thanks for a collection of new Chinese plants, including Clematis, Lonicera, Sobraria, and a Rubus in fruit.

Thomas E. Proctor of Topsfield made a large display of excellently grown *Adiantum Farleyense* accompanying his fruit exhibit, and the Fottler, Fiske, Rawson Co. made a very attractive display of dahlias, showing their holder, and received a Silver Medal.

On November 5 Seth A. Borden of Fall River received a First Class Certificate for a very fine plant of *Vanda Sanderiana* and a Silver Medal for a rare specimen of *Cattleya Gaskelliana alba.*

In addition to Medals $3860.00 has been awarded in money prizes and gratuities and a detailed list of the awards made is appended to this report.

PRIZES AND GRATUITIES AWARDED FOR PLANTS AND FLOWERS.

January 8.

Gratuity: —

William Whitman, Chinese Primulas, $5.

January 22.

Gratuity: —

J. R. Leeson, collection of Orchids, $10.

February 5.

Gratuity: —

William Whitman, group of Cinerarias, $5.

Midwinter Flower Show.

February 25, 26, and 27.

Palms.— Three distinct varieties, not less than eight feet high:
1st, William Whitman, $15.

Hard-wooded Plants.— (Azaleas, Acacias, Arecas, etc.).— Twelve:
1st, Mrs. J. L. Gardner, $20.

Group of flowering and foliage plants, covering one hundred square feet:
1st, A. Leuthy & Co., $40 and Silver Medal; 2d, Mrs. J. L. Gardner, $30; 3d, W. W. Edgar, $20.

Primula Kewensis.— Six plants, in not less than seven-inch pots:
1st, Mrs. Frederick Ayer, $5; 2d, Winthrop Ames, $3; 3d, Dr. C. G. Weld, $2.

Primula stellata.— Six plants, in not less than six-inch pots:
1st, Mrs. J. L. Gardner, $5; 2d, William Whitman, $3.

Primula obconica varieties.— Six plants, in not less than six-inch pots:
1st, William Whitman, $6; 2d, William Whitman, $3; 3d, Mrs. Frederick Ayer, $2.

Cyclamens.— Twenty-four plants, in not over seven-inch pots:
Dr. C. G. Weld, Silver Medal.

Twelve plants, in not over seven-inch pots (commercial growers excluded):
1st, J. S. Bailey, $15; 2d, E. J. Mitton, $10; 3d, J. S. Bailey, $6.

Six plants, in not over ten-inch pots:
1st, Dr. C. G. Weld, $25; 2d, E. J. Mitton, $15; 3d, J. S. Bailey, $10.

Hyacinths.— Six pans not exceeding ten inches in diameter, six bulbs of one distinct variety in each pan:
1st, William Whitman, $12.

Single pan not exceeding twelve inches in diameter, with ten bulbs of one variety:
1st, Mrs. J. L. Gardner, $4: 2d, Mrs. J. L. Gardner, $3; 3d, William Whitman, $2.

Early Tulips.— Six eight-inch pans, nine bulbs of one distinct variety in each:
1st, William Whitman, $10; 2d, William Whitman, $8.

Narcissuses.— Collection of Large Trumpet varieties, ten eight-inch pots, one distinct variety in each:
1st, William Whitman, $15; 2d, Mrs. J. L. Gardner, $12.

Collection of Short Trumpet varieties, ten eight-inch pots, one distinct variety in each:
1st, William Whitman, $15; 2d, William Whitman, $12; 3d, Mrs. J. L. Gardner, $8.

General Display of Spring Bulbous Plants.— All classes, to be arranged with foliage plants:
1st, William Whitman, $30.

Forced Bulbs (For amateurs only).— Six pans, six inches in diameter, grown without the aid of a frame or greenhouse:
1st, Miss M. A. Rand, $5.

Orchids.— Specimen plant:
1st, Mrs. H. F. Durant, $6; 2d, J. T. Butterworth, $4; 3d, Mrs. Oliver Ames, Sr., $2.

Roses.— Twenty-five Killarney:
1st, W. H. Elliott, $12.

Twenty-five of any other pink variety:
1st, Brant Bros., $12.

Twenty-five White Killarney:
1st, W. H. Elliott, $12.

Twenty-five Richmond:
1st, Montrose Greenhouses, $12.

Twenty-five of any other variety:
1st, Brant Bros., The Bride, $12; 2d, W. H. Elliott, Safrano, $8.

Carnations.— Fifty white:
1st, M. A. Patten, White Perfection, $6; 2d, M. A. Patten, Shasta, $4; 3d, C. S. Strout, White Perfection, $3.

Fifty flesh pink (Enchantress shade):
1st, S. J. Goddard, Pink Delight, $6; 2d, M. A. Patten, May Day, $4; 3d, G. E. Buxton, Pink Delight, $3.

Fifty light pink (Winsor shade):
1st, M. A. Patten, Winona, $6; 2d, M. A. Patten, Winsor, $4; 3d, S. J. Goddard, Winsor, $3.

Fifty deep pink (Lawson shade):
1st, S. J. Goddard, Helen Goddard, $6; 2d, A. D. Emerson, Mrs. T. W. Lawson, $4.

Fifty scarlet:
1st, M. A. Patten, Beacon, $6; 2d, C. S. Strout, Beacon, $4; 3d, S. J. Goddard, Beacon, $3.

Fifty Crimson:
1st, Backer & Co., Harry Fenn, $6; 2d, S. J. Goddard, Ruby, $4; 3d, M. A. Patten, Sara Nicholson, $3.

Fifty white variegated:
1st, A. Roper, Bay State, $6; 2d, M. A. Patten, Bay State, $4.

Fifty yellow or variegated:
1st, M. A. Patten, Hattie Starritt, $6; 2d, Backer & Co., 14 A, $4.

Fifty mixed (private gardeners only):
1st, Mrs. Frederick Ayer, $6; 2d, Mrs. J. C. Whitin, $4.

One hundred of any one variety with foliage:
1st, Peter Fisher, $12.

Vase of one hundred blooms, in not less than four varieties, arranged for effect with their own foliage:
1st, S. J. Goddard, Silver Medal; 2d, M. A. Patten, Bronze Medal.

Fifty blooms of the best new named variety not in commerce:
Winthrop Ames, Wodenethe, Silver Medal.

Sweet Peas.— Six vases, distinct varieties, one hundred blooms in each:
1st, William Sim, Silver Medal.

Two vases, distinct varieties, one hundred blooms in each:
1st, William Sim, $5; 2d, William Sim, $4.

Violets.— Bunch of one hundred blooms of Princess of Wales:
1st, Dobbins & Shannon, $4; 2d, J. H. Newman & Sons, $3; 3d, Estey Bros., $2.

Any other single variety:
3d, H. F. Woods, $2.

Lady Hume Campbell:
1st, H. F. Woods, $4; 2d, E. Bingham, $3; 3d, H. F. Calder, $2.

Any other double variety:
1st, H. F. Calder, Marie Louise, $4; 2d, H. F. Calder, Farquhar, $3.

Mignonette.— Twenty-five spikes:

1st, William Nicholson, $5.

Lily of the Valley.— Fifty sprays:

1st, J. H. Leach & Son, $5; 2d, John McFarland, $3; 3d, T. J. Grey Co., $2.

Basket of Flowers (For retail florists):

1st, H. R. Comley, $15; 2d, Edward MacMulkin, $10; 3d, Penn, the florist, $5.

Gratuities: —

Thomas Roland, display of hard-wooded and other flowering plants, $25.
Mrs. Winthrop Ames, display of Primulas, Begonias, and Ferns, $10.
Mrs. Frederick Ayer, display of Acacias and Ericas, $10.
Dr. C. G. Weld, *Lachenalia Nelsoni*, $3.
" " " " *Cineraria hybrida*, $5.
" " " " Acacias, $2.
Edward MacMulkin, collection of *Anthurium Scherzerianum*, $5.
E. J. Ahearn, vase of yellow Marguerites, $3.
Mrs. Sarah C. Sears, Camellia blooms, $5.
William Sim, display of Violets, $5.
L. E. Small, *Dimorphotheca aurantiaca*, $2.
F. H. Houghton, ancient bouquet, $3.
Edward MacMulkin, display, $3.
Mrs. E. M. Gill, display, $3.

March 19.

Gratuity: —

Mrs. Frederick Ayer, group of Acacias, $10.

Orchid Exhibition.

May 26, 27, 28, 29, and 30.

Orchids.— Display of plants in bloom, to fill four hundred square feet of space:

1st, Julius Roehrs Co., Gold Medal and $1,000; 2d, C. G. Roebling, Silver Medal and $500; 3d, Lager & Hurrell, Bronze Medal and $250.

Display of plants in bloom, to fill one hundred and fifty square feet of space:

1st, E. B. Dane, Gold Medal and $200; 2d, Walter Hunnewell, Silver Medal and $100.

Best recently introduced plant not previously exhibited in the United States:

Lager & Hurrell, Cattleya gigas, white variety, Gold Medal.

Best new seedling plant not previously exhibited, in the United States:

Julius Roehrs Co., Cattleya Dusseldorfii Undine, Gold Medal.

Largest and best display of cut blooms arranged with ferns or other foliage:

1st, W. A. Manda, Gold Medal and $100; 2d, W. A. Manda, Silver Medal and $50.

Best collection of cut blooms of new varieties not before exhibited in the United States:

W. A. Manda, Gold Medal.

Six plants, distinct genera:

1st, Julius Roehrs Co., Silver Medal and $50; 2d, Mrs. B. B. Tuttle, Bronze Medal and $25.

Three plants, distinct genera:

1st, W. A. Manda, Silver Medal and $25; 2d, J. T. Butterworth, Bronze Medal and $15.

Three Cattleyas, distinct species:

1st, W. A. Manda, Silver Medal and $25.

Specimen Cattleya, any species:

1st, J. T. Butterworth, C. Mossiæ Reineckiana, Silver Medal; 2d, J. T. Butterworth, C. Mossiæ Mrs. Butterworth, Bronze Medal.

Specimen Cymbidium:

1st, Weld Garden, Silver Medal; 2d, W. A. Manda, Bronze Medal.

Three Cypripediums, distinct species:

1st, Julius Roehrs Co., Silver Medal and $15.

Specimen Cypripedium:

1st, Dr. C. G. Weld, Silver Medal.

Specimen Dendrobium:

1st, Weld Garden, D. chrysotoxum, Silver Medal; 2d, Julius Roehrs Co., D. crassinode, Bronze Medal.

Miltonia vexillaria, six plants:

1st, Walter Hunnewell, Silver Medal and $25; 2d, J. T. Butterworth, Bronze Medal and $15.

Specimen Miltonia vexillaria:

1st, J. T. Butterworth, Silver Medal; 2d, Walter Hunnewell, Bronze Medal.

Six Odontoglossums, not less than three species:

1st, Julius Roehrs Co., Silver Medal and $25.

Specimen Odontoglossum:

1st, Walter Hunnewell, O. Rolfeae, Silver Medal.

Specimen Oncidium:

1st, Mrs. B. B. Tuttle, O. sphacelatum, Silver Medal; 2d, Julius Roehrs Co., O. ampliatum majus, Bronze Medal.

Specimen Vanda:

1st, Howard Gould, V. coerulea, Silver Medal.

Specimen orchid, any genus not otherwise provided for in the schedule:
1st, Col. Charles Pfaff, Brassia verrucosa, Silver Medal; 2d, Mrs. B. B. Tuttle, Phalænopsis Lueddemanniana, Bronze Medal.
Best specimen orchid plant in the exhibition:
Julius Roehrs Co., Cattleya Mossiae, Gold Medal.
Flowering and Foliage stove or greenhouse plants.— Group, arranged for effect:
1st, Julius Roehrs Co., Gold Medal and $100; 2d, Edward MacMulkin, Silver Medal and $50.
Best plant in bloom, not previously exhibited in the United States:
Thomas Roland, Gold Medal.
Coniferous plant.— Best species, not yet disseminated, likely to be hardy in the United States:
W. A. Manda, an undisseminated Juniper, Gold Medal.

Gratuities:—

Mrs. J. L. Gardner, group of Orchids, Bronze Medal and $20.
J. T. Butterworth, " " " Silver Medal and $25.
G. L. Freeman, display of cut Orchids, $10.
Edward MacMulkin, decoration of Orchids and flowering plants, $20.
W. A. Riggs, group of flowering and foliage plants, $50.
Waban Rose Conservatories, White Killarney Rose, Cultural Certificate and $25.
Dr. C. G. Weld, specimen Azalea, $10.
Patten & Co., display of Carnations, $5.
Mrs. H. F. Durant, *Statice Halfordii*, $3.

Peony Exhibition.

June 14 and 15.

Herbaceous Peonies.— Collection of thirty or more varieties, double, one flower of each:
1st, Mrs. James McKissock, $12; 2d, T. C. Thurlow's Sons Co., $8.
Collection of twelve named varieties, double, three flowers of each:
1st, G. H. Peterson, $12; 2d, William Whitman, $8; 3d, Mrs. J. L. Gardner, $6.
Specimen bloom, double:
1st, G. H. Peterson, Mme de Galhau, $2.
Vase of blooms on long stems, arranged in the Society's large China vases:
2d, Mrs. J. L. Gardner, $6.
Collections of six named double varieties, white, one flower of each:
3d, T. C. Thurlow's Sons Co., $1.

Rose Pink:
2d, T. C. Thurlow's Sons Co., $2.
Red or Crimson:
2d, T. C. Thurlow's Sons Co., $2.
Vase of twenty-five blooms, double, white or blush:
1st, S. G. Harris, $5; 2d, Mrs. E. M. Gill, $3; 3d, B. H. Farr, $2.
Pink or Rose:
1st, G. H. Peterson, $5; 2d, G. H. Peterson, $3; 3d, William Whitman, $2.
Red or Crimson:
1st, G. H. Peterson, $5; 2d, G. H. Peterson, $3; 3d, T. C. Thurlow's Sons Co., $2.
Any other color:
1st, T. C. Thurlow's Sons Co., $5; 2d, William Whitman, $3.
Collection of twelve named varieties, double, one flower of each, for non-commercial growers only:
1st, William Whitman, $6; 2d, T. A. Havemeyer, $4; 3d, Mrs. J. L. Gardner, $3.
Best display of peonies arranged for decorative effect, to occupy a space not exceeding one hundred square feet:
1st, R. & J. Farquhar & Co., Silver Medal and $10.

Gratuities:—

T. C. Thurlow's Sons Co., display of single Peonies, $4.
William Whitman, display of Foxgloves, Irises, and Peonies, $10.
Mrs. E. M. Gill, display of Roses and Peonies, $10.
Mrs. Frederick Ayer, Begonia Rex, $10.
Blue Hill Nurseries, display of Pyrethrums, $8.
Eastern Nurseries, display of miscellaneous herbaceous flowers, $8.

JUNE 25.

Gratuity:—

William Whitman, collection of seedling Delphiniums, Silver Medal and $10.

JULY 2.

Gratuities:—

Mrs. J. L. Gardner, display of Japanese Iris, Silver Medal and $10.
William Whitman, display of Japanese Iris and Phlox Mme. Lingard, Silver Medal and $10.

AUGUST 31.

Gratuities:—

William Whitman, display of Phlox, Dahlias, and annuals, $10.
B. H. Tracy, collection of Gladioli, Honorable Mention and $3.
Mrs. E. M. Gill, miscellaneous collection of annuals and other flowers, $3.
Mrs. J. L. Gardner, display of annuals, $5.

General Autumn Exhibition.

September 23, 24, and 25.

Hardy Herbaceous Plants.— For the best collection of cut blooms, to cover not less than one hundred square feet of space:
1st, R. & J. Farquhar & Co., Silver Medal.

Dahlias.— Show, twenty-four blooms, named varieties:
1st, W. D. Hathaway, $4; 2d, A. E. Johnson, $3; 3d, E. W. Ela, $2.

Show, twelve blooms, named varieties:
1st, W. K. Hall, $3; 2d, E. W. Ela, $2; 3d, Mrs. L. M. Towle, $1.

Peony flowered, twenty-four blooms, named varieties:
1st, W. D. Hathaway, $4.

Peony flowered, twelve blooms, named varieties:
1st, W. F. Turner & Co., $3.

Cactus, twenty-four blooms, named varieties:
1st, W. D. Hathaway, $4; 2d, Joseph Thorpe, $3; 3d, J. K. Alexander, $2.

Cactus, twelve blooms, named varieties:
1st, W. F. Turner & Co., $3; 2d, Joseph Thorpe, $2; 3d, E. W. Ela, $1.

Decorative, twenty-four blooms, named varieties:
1st, W. D. Hathaway, $4; 2d, A. E. Johnson, $3; 3d, W. H. Cruff, $2.

Decorative, twelve blooms, named varieties:
1st, W. F. Turner & Co., $3; 2d, W. F. Hall, $2; 3d, E. W. Ela, $1.

Pompon, twelve vases of three blooms each, named varieties:
1st, J. K. Alexander, $3; 2d, E. W. Ela, $2: 3d, W. D. Hathaway, $1.

Single, twelve vases of three blooms each, named varieties:
1st, W. F. Turner & Co., $3; 2d, E. W. Ela, $2.

Largest and best collection of named varieties, one vase of each:
1st, G. H. Walker, $8; 2d, J. K. Alexander, $6; 3d, H. L. Winter, $4.

Gladioli.— Best display arranged for effect:
1st, B. H. Tracy, Silver Medal.

Gratuities:—

W. D. Hathaway, display of Dahlias, $3.
A. W. Preston, " " " $3.
G. B. Gill, " " " $2.
Mrs. H. F. Durant, specimen *Oncidium varicosum Rogersi*, $3.
Mrs. J. L. Gardner, display of ferns, $5.
Mrs. E. M. Gill, display of cut flowers, $4.

Additional Awards.

GOLD MEDALS.

February 25. Langwater Gardens, Display of Orchids.
" " Mrs. Sarah C. Sears, display of hybrid Amaryllises.
May 26. Julius Roehrs Co., group of Brasso-Cattleyas.
" " Harvard Botanic Garden, group of stove and greenhouse plants.
" " Prof. C. S. Sargent, collection of Azaleas.
" " R. & J. Farquhar & Co., group of shrubs and climbers from China.

SILVER MEDALS.

February 25. Thomas Roland, display of *Erica melanthera.*
March 5. Dr. C. G. Weld, *Dendrobium nobile virginale.*
May 26. Gen. S. M. Weld, specimen Rhododendron.
" " Walter Hunnewell, " "
" " Établissement Horticole Le Lion, collection of *Cocos Weddelliana.*
" " T. D. Hatfield, superior cultivation of Fuchsias.
" " Duncan Finlayson, group of Canterbury Bells and other plants.
" " Thomas Roland, collection of new Hydrangeas.
" " Charles Sander, collection of new single Tree Peonies.
" " Henry A. Dreer Inc., collection of Hybrid Tea Roses.
" " William Sim, collection of Sweet Peas.
June 14. Mrs. Frederick Ayer, display of Fuchsias.
" " R. & J. Farquhar & Co., display of Peonies and Foxgloves.
" " Walter Hunnewell, display of Rhododendron blooms.
" " E. J. Shaylor, display of Peonies.
September 23. Henry A. Dreer Inc., display of Water Lilies.
" " Fottler, Fiske, Rawson Co., display of Dahlias.
November 19. E. B. Dane, *Cypripedium Dante magnificum.*

FIRST CLASS CERTIFICATES OF MERIT.

February 25. R. & J. Farquhar & Co., display of Palms, Azaleas, Primulas, and other spring flowering plants.
" " William Sim, Sweet Pea No. 107.
April 23. R. & J. Farquhar & Co., Clematis "No. 426, Wilson."
May 26. " " " " Begonia Pink Beauty.
" " Mount Desert Nurseries, *Nephrolepis Milleri.*
" " C. W. Brownell Co., potting materials.
November 19. E. B. Dane, *Cypripedium Tityus.*

Cultural Certificates.

January 22. William Harvey, collection of Orchids.
November 5. S. A. Borden, *Vanda Sanderiana.*
" 19. E. B. Dane, *Oncidium crispum.*
" " " " " *Vanda cærulea.*
" " " " " *Cypripedium Sanderæ.*
" " J. R. Leeson, *Acineta Loddigesii.*

Honorable Mention.

January 8. Dr. C. G. Weld, *Cineraria grandiflora* var. *matador.*
February 25. John Barr, variegated seedling Carnation.
" " Montrose Greenhouses, dark pink sport from Rose Killarney.
" " Dr. C. G. Weld, seedling Azaleas.
" " Weld Garden, *Cattleya Schroderæ* var. *alba.*
" " Backer & Co., Carnation Red Prince.
" " New Hampshire College, collection of seedling Carnations.
" " Anthony Zvolanek, collection of Sweet Peas.
April 23. Walter Hunnewell, *Azalea indica Wilsoni.*
May 26. G. L. Freeman, collection of Orchids.
" " W. W. Rawson & Co., collection of Tulips.
" " R. & J. Farquhar & Co., Pelargonium Oster Gruss.
" " " " " " Geranium Mrs. Charles Pfaff.
" " " " " " Seedling Iris.
" " Julius Roehrs Co., Croton Fred Sander.
" " Howard Gould, Malmaison Carnations.
" " Thomas Meehan & Sons, collection of Japanese Maples, Peonies, and Golden Privet.
" " John Lewis Childs, exhibit of Gladioli.
June 25. C. W. Parker, collection of Roses.
September 23. R. & J. Farquhar & Co., Roses, Palms, and Ferns.
" " " " " " seedling Phlox.
" " " " " " new Tuberous Begonia Alice Manning.
" " G. B. Gill, seedling Cactus Dahlia Mrs. E. M. Gill.
" " T. E. Proctor, display of *Adiantum Farleyense.*
November 19. E. B. Dane, Cypripedium Wm. McKinley.
" " " " " *Cypripedium Leeanum* × *purum.*
" " " " " *Cattleya labiata* × *C. Maroni.*
" " " " " *Laelio-Cattleya Timora* × *Cattleya Loddigesii.*

Vote of Thanks.

February 25. Mrs. H. F. Durant, display of miscellaneous plants.
" " Mrs. Oliver Ames, display of Orchids and cut flowers.
" " William Whitman, *Cattleya Trianae.*
" " Julius Roehrs Co., display of Orchids.
" " Lager & Hurrell, " " "
" " Winthrop Sargent, display of cut Amaryllises.
June 14. Oldtown Nurseries, Iris Snow Queen.
" " J. S. Chase, seedling Peony.
September 23. R. & J. Farquhar & Co., display of Peony-flowered Dahlias.
" " R. & J. Farquhar & Co., display of Chinese plants.

T. D. Hatfield
Duncan Finlayson
Peter Fisher
Samuel J. Goddard
Thomas Roland
William Thatcher

Committee on Plants and Flowers.

REPORT OF THE COMMITTEE ON FRUITS FOR THE YEAR 1910.

BY EDWARD B. WILDER, CHAIRMAN.

The report of your committee must necessarily be brief as the suspension of the schedule for fruit at the beginning of the season and the elimination of the exhibitions leave little to note.

We were glad to see an increase in the amount of fruit exhibited at the Midwinter Show, February 25–27, and trust it betokens a deeper interest in this show in the future.

At the Peony Show, June 14 and 15, George V. Fletcher exhibited a collection of strawberries consisting of the Golden Gate, Marshall, and Barrymore. The Barrymore was particularly fine and worthy of mention.

On August 31, James Garthly exhibited a very fine collection of melons for which he received a Silver Medal.

The members of the committee were impressed with the great value of the new green-flesh melon, Mrs. H. H. Rogers, also shown by Mr. Garthly, and awarded him a First Class Certificate of Merit for the same.

In a description of this melon he says it averages from four to six pounds, green fleshed, smooth green skin, of a rich and delicious flavor, sets its fruit well and is very prolific, yielding from ten to fifteen melons to each hill.

At the Autumn Exhibition, September 23–25, Edward E. Cole displayed the finest plate of Maiden Blush apples seen in the Hall for many years.

Dr. W. G. Kendall exhibited pears, grapes, and peaches, and especial mention should be made of the Chair's Choice peaches which were very large, uniform in size, and beautiful in color.

Perhaps the entry which was most appreciated was the table of foreign grapes from Thomas E. Proctor of Topsfield, James Marlborough, gardener. On this table, beautifully decorated with

plants of maiden hair fern (*Adiantum Farleyense*), were eleven varieties of foreign grapes. Never in the history of this building, at least, has the Society had the pleasure of seeing such a fine exhibit. The fruit was well grown, beautifully staged, and of the best quality.

This exhibit goes to prove that with a little encouragement from the Society fruit of this class will be shown at our exhibitions, thus stimulating a revival of the culture of hot-house fruits and of their exhibition. Morton F. Plant of Groton, Connecticut, Thomas W. Head, Superintendent, also had a very fine collection of four varieties of foreign grapes showing wonderful culture. The bunches were very large, the berries of great size, and the bloom perfect upon them. We hope in the future more thought will be given to the artistic arrangement of exhibits of orchard house fruits.

In 1908 the Society offered two special prizes of $100.00 and $50.00 for apple orchards, said prizes to be awarded after three consecutive years of examination by the Committee on Fruits.

The First Prize has been awarded to Lyman F. Priest of Gleasondale, and the Second Prize to E. Cyrus Miller of Haydenville.

As the orchards entered for these prizes have been viewed the two previous years and also visited this year by the former Chairman of the Fruit Committee, Mr. Wilfrid Wheeler, he has been requested to make the report which is appended herewith.

Report on the Orchard Contest of the Massachusetts Horticultural Society.

BY WILFRID WHEELER.

In 1908 this Society offered a prize for the best apple orchard in bearing in Massachusetts, hoping thereby to create a renewed interest in apple production, and bring to life an enthusiasm along this line, which for the past twenty-five years or more, has been steadily declining. The carrying out of this contest was left in the hands of the Committee on Fruits which now submits the following report.

There were only four entries made in the contest, but in these we had three distinct types of orchards represented, and different methods in regard to care and management, so that there was much of interest to see and compare. Two of the four entries referred to were large commercial

orchards, both in splendid condition. One of these, which is about twenty years old and owned by Mr. Lyman F. Priest of Gleasondale, shows a fine example of the sod or uncultivated orchard. The trees have never been cultivated since coming into bearing, but a fertile condition of the soil has been maintained by the application of manure, sulphate of potash, bone meal, and lime. This is broad-casted over the orchard. The hay crop is cut and removed; spraying, pruning, and thinning the fruit, and all other scientific orchard methods are practised; with the result that a product is obtained which commands the best prices and makes a market for itself.

The varieties grown by Mr. Priest are McIntosh, Wealthy, Gravenstein, Roxbury Russet, Rolfe, Hyslop Crab, and Yellow Transparent. Probably nowhere in the East can apples be found that compare in quality, size, and color to those produced in this orchard. Our Society has had abundant proof of this in the specimens exhibited here by Mr. Priest.

The second of the commercial orchards is of about the same age as the one just described, and is owned by Mr. E. Cyrus Miller of Haydenville. In this orchard only one variety of apples is raised to sell. The orchard is partially cultivated; that is a strip of sod is left under the trees while the strip of ground in the open is cultivated. The fertilizers used are largely stable manure and wood ashes. The trees show good health, are free from insects, and well pruned, but the fruit of this Haydenville orchard is not of as high quality as that at Mr. Priest's and is shipped principally to the wholesale markets.

The orchard of Mr. Edward E. Cole of Greenbush belongs to an entirely different class from the two we have already mentioned, having been planted for a home orchard, and containing many varieties of apples such as Baldwin, Rhode Island Greening, Northern Spy, Maiden Blush, Alexander, Roxbury Russet, Chenango, and Fameuse. This orchard is in sod and has never been cultivated. The fertilizers used are manure, nitrate of soda, sulphate of potash, and bone meal, sown broadcast over the ground.

Careful methods of orcharding are used by Mr. Cole, such as spraying, pruning, and thinning the fruit, and one seldom sees a better grade of apples than that which comes from these trees. The fruit is very carefully picked, too, and what is not used by the family commands a high price.

The Society has seen some good examples of Mr. Cole's fruit in the past few years at its exhibitions.

The last orchard entered was of old trees, many of them over fifty years of age, and until within five years practically worthless. The owner of this orchard, Mr. George F. Root of Concord, began work on it when it was in the worst possible condition and by pruning, spraying, and thoroughly ridding the trees of dead bark, lichens, etc. has entirely changed their appearance and materially improved their condition. The ground about the trees was then ploughed and successive crops of clover, cowpeas, and buckwheat were turned under during three seasons, and a dressing

of poultry manure was added. This treatment has changed the orchard from a state of neglect and decay, to one of thrifty, healthy growth, and best of all, the apples, which a few years ago were worthless, being full of apple maggot, codlin-moth, sooty fungus, and other pests, are now of good size, fine color, excellent quality, and sell for the best prices.

It is the practice of the owner of this orchard to grow every year some crop which can be ploughed into the soil to supply nitrogen; this is now all the cultivation the orchard receives.

Summing up results as to the value to this Society of the experiment of the orchard contest, in the first place, it has emphasized the fact that good apples can be grown in almost any location provided the grower will use the best known methods of orchard culture, and give the care and attention to this business that it receives in the West. Apple growing has got to become a business in Massachusetts, so the days of the apple tree of the pasture and roadside are numbered, for with insects and disease abroad, the tree which receives no care will soon succumb to its ememies. In the second place this contest has again impressed the fact that spraying is a very necessary part of orchard management, being most essential in controlling the various bacterial, insect, and fungous enemies.

Spraying also adds greatly to the appearance of the fruit, the health of the bark and the leaves of the trees, in short solves many of the most difficult of orchard problems.

Such contests, as the one we have reported to you, are undoubtedly of value and should be encouraged by our Society especially along the lines of new orchards.

The Society appropriated $193.00 for fruit prizes during the year 1910. Of this amount $178.00 has been awarded, leaving an unexpended balance of $15.00. There have been awarded also 2 Silver Medals and 1 First Class Certificate of Merit.

The awards made during the year are as follow:

PRIZES AND GRATUITIES AWARDED FOR FRUITS.
1910.

Midwinter Flower Show.

February 25, 26, and 27.

For the best collection of Winter Apples, not less than four varieties:
1st, G. V. Fletcher, $5.

Gratuities:—

L. F. Priest, Roxbury Russet apples, $2.
G. V. Fletcher, collection of pears, $2.
F. W. Dahl, " " " $1.

Peony Exhibition.

June 14 and 15.

Gratuity:—

G. V. Fletcher, collection of strawberries, $2.

August 31.

Gratuities:—

James Garthly, collection of melons, Silver Medal.
" " green flesh seedling melon Mrs. H. H. Rogers, First Class Certificate of Merit.

General Autumn Exhibition.

September 23, 24 and 25.

Special Prizes.

Foreign Grapes.— Collection of not less than four varieties, two bunches of each:
1st, T. E. Proctor, Silver Medal; 2d, M. F. Plant, $10.

Benjamin V. French Fund.

Apples.— Gravenstein:
1st, Elliott & H. W. Moore, $3; 2d, G. V. Fletcher, $2; 3d, H. A. Clark, $1.

Marshall P. Wilder Fund.

Pears.— Bartlett:
1st, W. G. Kendall, $3; 2d, G. V. Fletcher, $2; 3d, C. B. Travis, $1.

Society's Prizes.

Apples.— Gravenstein:
1st, Elliott & H. W. Moore, $3; 2d, E. E. Cole, $2; 3d, L. F. Priest, $1.
Maiden Blush:
1st, E. E. Cole, $3; 2d, W. G. Kendall, $2; 3d, Winthrop Ames, $1.
Wealthy:
1st, H. J. Andrews, $3; 2d, L. F. Priest, $2; 3d, J. W. Fletcher, $1.

Sutton Beauty:
1st, H. A. Clark, $3; 2d, E. R. Farrar, $2.
McIntosh:
1st, Cheney Bros., $3; 2d, Elliott & H. W. Moore, $2; 3d, L. F. Priest, $1.
Porter:
1st, Wilfrid Wheeler, $3; 2d, G. E. Morris, $2; 3d, W. Heustis & Son, $1.
Any other variety:
1st, Elliott & H. W. Moore, Washington Strawberry, $3; 2d, Winthrop Ames, Fall Pippin, $2; 3d, G. V. Fletcher, Pound Sweet, $1.

Melons.— Sweet, three specimens:
1st, James Garthly, Improved Honey Drop, $3; 2d, Frederick Mason, Maule's Honey, $2; 3d, Frederick Mason, Tip Top, $1.
Watermelons, three specimens:
1st, Oliver Ames, $3; 2d, Frederick Mason, $2.

Pears.— Bartlett:
1st, G. V. Fletcher, $3; 2d, H. A. Clark, $2; 3d, F. W. Damon, $1.
Beurre Bosc:
1st, W. G. Kendall, $3; 2d, J. B. Shurtleff, Jr., $2; 3d, G. V. Fletcher, $1.
Sheldon:
1st, F. W. Dahl, $3; 2d, F. W. Damon, $2; 3d, G. V. Fletcher, $1.
Seckel:
1st, W. G. Kendall, $3; 2d, F. W. Dahl, $2; 3d, F. W. Damon, $1.
Any other variety, ripe:
1st, F. W. Dahl, $3; 2d, F. W. Dahl, $2; 3d, J. L. Bird, $1.

Peaches.— Any variety:
1st, A. F. Estabrook, Stump, $3; 2d, A. F. Estabrook, Lord Palmerston, $2; 3d, W. G. Kendall, Chair's Choice, $1.

Plums.— Collection of not less than four varieties, twelve specimens of each:
1st, G. V. Fletcher, $4; 2d, Elliott & H. W. Moore, $3.
Single plate of any variety:
1st, G. V. Fletcher, Bradshaw, $2; 2d, W. T. Hutchinson, $1.

Native Grapes.— For the best White Grape:
1st, C. W. Libby, Moore's Diamond, $3; 2d, C. F. Hayward, Niagara, $2; 3d, John Bauernfeind, Moore's Diamond, $1.
For the best Red Grape:
1st, C. W. Libby, Brighton, $3; 2d, W. G. Kendall, Salem, $2; 3d, C. W. Libby, Delaware, $1.
For the best Purple Grape:
1st, H. J. Andrews, Worden, $3; 2d, W. G. Kendall, Worden, $2; 3d, E. R. Farrar, Worden, $1.
For the best collection of five varieties, three bunches of each:
1st, W. G. Kendall, $5; 2d, J. Bauernfeind, $4; 3d, C. W. Libby, $3.

Gratuities: —

C. A. Campbell, Willett peach, $1.
L. F. Priest, Hyslop Crab apple, $2.
Mrs. J. C. Whitin, collection of grapes, $5.
J. B. Shurtleff, Jr., collection of grapes, $2.
J. S. Chase, " " " $1.
E. B. Wilder, collection of pears, $5.

Special Prizes for Apple Orchards.

For the best bearing apple orchard in Massachusetts, not less than three acres:
1st, L. F. Priest, $100; 2d, E. C. Miller, $50.

EDWARD B. WILDER
J. WILLARD HILL
JAMES WHEELER
} *Committee on Fruits.*

REPORT OF THE COMMITTEE ON VEGETABLES FOR THE YEAR 1910.

BY JOSIAH B. SHURTLEFF, JR., CHAIRMAN.

Your committee regrets that owing to the proposed changes in the Society's building only two exhibitions have been held the past year. We believe these changes are necessary and hope they may take place at no distant date.

The past season was one of the dryest ever known; for that reason and on account of the small number of exhibitions we have very little to report.

The exhibits were of the usual superior quality notwithstanding the unfavorable conditions and almost every class was competed for.

The committee is quite gratified that the Society has favorably considered its recommendation of a large exclusively vegetable show in 1911 and we feel sure that it will awaken more life and vigor and create more enthusiasm for this line of work.

The National Vegetable Growers' Convention will be held at the same time and the Boston Market Gardeners' Association is already formulating plans to have its members assist and exhibit.

We feel sure that the members of the Society will enter into the spirit of making this the largest and best vegetable show ever held, a revelation to our visiting friends, and of national benefit.

We are pleased that the schedule is to be such a broad one and that the prizes are to be so liberal. Heretofore we have been unable to get many collections staged for decorative effect because of the expense involved, so we suggest that even larger prizes be offered for this class.

We would also recommend that one of the Vegetable Committee again be made a member of the Committee on Prizes and Exhibitions, for now if mistakes happen in our section there is no way to avoid a repetition.

The February exhibition, although of few classes, had some fine mushrooms and tomatoes.

The collection of salad plants, many of them new, exhibited by Vincent Buitta was exceptionally fine.

A gratuity was awarded F. W. Dahl for his display of Erfurt celery.

The quality of the vegetables shown at the September exhibition was of the usual high standard but the exhibits were not large in number.

Charles A. Campbell's exhibition of potatoes attracted much attention for their unusual size and quality.

The total amount spent for prizes during the year was $149.00 and a detailed list of the awards made follows:

PRIZES AND GRATUITIES AWARDED FOR VEGETABLES.

1910.

Midwinter Exhibition.

February 25, 26, and 27.

William J. Walker Fund.

Lettuce.— Four heads:
1st, Halifax Gardens, $3.

Mushrooms.— Twelve specimens:
1st, Bellevue Greenhouses, $3; 2d, Vincent Buitta, $2.

Tomatoes.— Twelve specimens:
1st, Mrs. Frederick Ayer, $3; 2d, Mrs. Frederick Ayer, $2.

Collection of Forced Vegetables.— Not less than four varieties:
1st, Vincent Buitta, $8.

Gratuity: —

F. W. Dahl, Erfurt celery, $1.

General Autumn Exhibition.

September 23, 24 and 25.

Beans.— Lima, two quarts, shelled:
1st, Frederick Mason, $3.

Beets.— Twelve specimens:
1st, Frederick Mason, $3; 2d, Oliver Ames, $2; 3d, W. Heustis & Son, $1.

Brussels Sprouts.— Half-peck.
1st, Oliver Ames, $3.

Cabbages.— Three of any variety, trimmed:
1st, Oliver Ames, $3.

Celery.— Paris Golden, four roots:
1st, W. Heustis & Son, $3; 2d, Frederick Mason, $2; 3d, John Ryan, $1.

Corn.— Sweet, twelve ears:
1st, Frederick Mason, $3; 2d, Mrs. R. Goodnough, $2; 3d, Frederick Mason, $1.

Culinary Herbs, Green.— Collection, named:
1st, J. B. Shurtleff, Jr., $4.

Egg Plants.— Four of any variety:
1st, Oliver Ames, $3; 2d, C. A. Campbell, $2; 3d, Frederick Mason, $1.

Endive.— Broad Leaf or Escarol, six specimens:
1st, Frederick Mason, $3.

Lettuce.— Four heads:
1st, A. W. Preston, $3; 2d, Frederick Mason, Salamander, $2; 3d, Frederick Mason, Deacon, $1.

Cos or Romaine:
1st, Frederick Mason, Express, $3; 2d, Frederick Mason, Whiteheart, $2.

Onions.— Twelve specimens:
1st, Frederick Mason, $3; 2d, J. B. Shurtleff, Jr., $2; 3d, Oliver Ames, $1.

Parsley.— Four quarts:
1st, A. W. Preston, $3; 2d, Oliver Ames, $2; 3d, Frederick Mason, $1.

Peppers.— Twelve specimens:
1st, Oliver Ames, $3; 2d, Frederick Mason, Squash, $2; 3d, Frederick Mason, Chinese Giant, $1.

Potatoes.— Twelve Hebron:
1st, Elliott & H. W. Moore, $3; 2d, Frederick Mason, $2.

Twelve Green Mountain:
1st, C. A. Campbell, $3; 2d, Oliver Ames, $2.

Twelve of any other variety:
1st, Elliott & H. W. Moore, Drought Proof, $3; 2d, Oliver Ames, Delaware, $2; 3d, Frederick Mason, Rose, $1.

Radishes.— Four bunches:
1st, Oliver Ames, $3; 2d, Frederick Mason, Bright Breakfast, $2; 3d, Frederick Mason, Vick's Scarlet, $1.

Squash.— Hubbard, three specimens:
1st, J. B. Shurtleff, Jr., $3; 2d, Frederick Mason, $2.

Any other variety:
1st, Frederick Mason, Marrow, $3; 2d, Frederick Mason, Turban, $2.

Tomatoes.— Twelve of any variety:
1st, Frederick Mason, $3; 2d, Oliver Ames, $2; 3d, Wilfrid Wheeler, $1.

Collection of four varieties, eight of each:
1st, Oliver Ames, $3; 2d, Frederick Mason, $2.

Collection of Vegetables.— Twelve varieties, decorative arrangement to be considered:
1st, Frederick Mason, $8; 2d, Vincent Buitta, $5.

Gratuity:—

J. B. Shurtleff, Jr., collection of peppers, $2.

Josiah B. Shurtleff, Jr.
Vincent Buitta
George D. Moore
Committee on Vegetables.

FLOWER AND VEGETABLE GARDENS ON THE ESTATE OF GEORGE E. BARNARD, IPSWICH, MASS.

REPORT OF THE COMMITTEE ON GARDENS FOR THE YEAR 1910.

BY CHARLES W. PARKER, CHAIRMAN.

The Committee on Gardens is pleased to report that the interest in its department of the Society's work has been well sustained during the year and the various estates and gardens visited are reported upon herewith.

Estate of Col. Harry E. Converse at Marion.

June 29 the committee again visited the "Moorings," the estate of Col. Harry E. Converse at Marion, now in its second year of entry for the Hunnewell Triennial Premium.

The committee noted with much interest and pleasure the various improvements made since the visit of inspection the previous year. Especially noteworthy among these improvements were the water garden with its rustic bridges, the open gymnasium, the tennis court, and the various flower gardens of roses and other plants. A new bell tower has been also erected and a plantation of dwarf fruit trees started.

A half-dozen or more greenhouses were well filled with a great variety of flowering and foliage plants as well as with grapes, nectarines, peaches, pears, and apples. The vegetable and small-fruit gardens have been much enlarged and the whole estate shows the intelligent and progressive superintendence of the general manager of the property, David F. Roy, under whose skilful care the estate has been developed from a condition of wildness to a garden of beauty and harmony.

The extensive open ground between the residence and the rocky shore was occupied this season by a very promising crop of potatoes in order to prepare the ground for a fine lawn in the future.

Miss E. M. Tower's Flower Garden at Lexington.

July 1 a visit was again made to the attractive flower garden of Miss Ellen M. Tower at Lexington. Repeated visits to this notable garden only serve to increase the admiration of it. It was a pleasure to again stand at the neat gate at the entrance to the garden and look down the velvety grassy path bordered by brilliant masses of canterbury bells, foxgloves, larkspurs, and daisies which were at this time the prominent features in the floral display.

It is also a pleasure to again commend the taste and skill shown in the general arrangement of the garden which is still under the care of Otto Strassenburg the head gardener.

The Rose Garden of W. S. and J. T. Spaulding at Prides Crossing.

July 6 the committee inspected the notable rose garden of Messrs. W. S. and J. T. Spaulding at Prides Crossing. Here are cultivated some four hundred varieties of roses representing most of the prominent classes of hardy roses known to the horticulturist of today.

The rose garden is a separate enclosure in the midst of other large areas devoted to ornamental gardening. All around the sides masses of ramblers on wire trellises form the walls enclosing a wealth of bloom probably unequaled in this section of the country. The foliage of the rose plants was in unusually fine condition showing watchful and intelligent care and attention.

This garden was planted three years ago by Mrs. Harriet R. Foote of Marblehead, whose knowledge of roses and ability as a rose grower entitle her to distinction as a rosarian. Mrs. Foote still continues to have the care and direction of the rose garden and the results thus far accomplished are alike creditable to her and to the estate.

Estate of George E. Barnard at Ipswich.

August 19 the committee again had the pleasure of visiting "Riverbend," the interesting estate of Mr. George E. Barnard at Ipswich.

WATER GARDEN ON THE ESTATE OF GEORGE E. BARNARD, IPSWICH, MASS.

The display of herbaceous flowering plants exceeded anything the members of the committee had seen the present season and produced a brilliant color effect. Amongst the masses of flowering plants were numerous specimens rarely met with in our gardens and the ramble along the grassy paths of the flower beds was interesting and instructive.

The rose garden of unique scroll-work design, the water and rock gardens, and the vegetable gardens were all inspected and the whole estate was one that the committee has no hesitancy in holding up as a model worthy of the Society's approval.

In addition to the floricultural features the plantations of coniferous trees in great variety were noteworthy. Among these were many of the golden variegated forms, planted in masses, which give a touch of brightness to the landscape after the season of flowers is passed.

This is the third and final year of entry of this estate for the Hunnewell Triennial Premium which the committee awards to it. The personal interest of Mr. Barnard in the general supervision of his place and the fine taste shown in its development have been very pleasing to the members of the committee, who also recognize that the successful accomplishment of the ideas of the owner of such an estate depends in large measure upon the ability of the person employed to carry out his plans.

The committee feels that a great deal of credit is due to the superintendent of the estate, Mr. John S. Critchley, for his part in the work, which has required a high degree of horticultural skill and knowledge.

Andrew G. Weeks' Estate at Marion.

September 8 the committee was again invited to visit the beautiful home of Mr. Andrew Gray Weeks at Marion. This estate was described in detail in the report of the committee for the preceding year and on this the second visit the effects of the planting plan are becoming noticeable.

The rambler roses are fast performing their office in wreathing the white columns of the pergolas with beauty and the whole estate is assuming a finish that will soon make it one of the most notable estates in the Buzzard Bay region.

Dr. W. G. Kendall's Fruit Garden at Atlantic.

September 13 the committee inspected the fruit garden of Dr. Walter G. Kendall at Atlantic. This estate, covering an area of about one acre, is devoted almost exclusively to the production of high-grade fruits for private use. Dr. Kendall has been a constant exhibitor of the products of his garden at the exhibitions of the Society for a number of years and his name is well known in the list of prize winners. High quality is his motto and he gets it.

Among the varieties of fruits grown most of which were particularly in evidence on the day of the committee's visit were the following:

Apples.— Maiden Blush, McIntosh, Gravenstein, and Hubbardston.

Pears.— Dana Hovey, Bosc, Seckel, Bartlett, Worden Seckel, and Souvenir du Congres.

Peaches.— Foster, Mountain Rose, Chair's Choice, Greensboro, and Carman.

Plums.— Burbank, Jefferson, and October Purple. Dr. Kendall speaks very highly of the Jefferson, an old variety of a yellow plum. He considers it the most desirable variety for this vicinity.

Grapes.— Some sixty vines among the most noticeable being Campbell's Early, Salem, with unusually full bunches, Niagara, Worden, Green Mountain, Delaware, and Moore's Diamond.

There were also gooseberry, currant, and strawberry plants.

The successful results obtained in this extraordinary fruit garden are won by constant attention and vigilance. The specimens of the various fruits were larger and finer than those usually seen in private gardens and were almost entirely free from blemishes and other defects of insect and fungous depredations, and a particularly savage looking bulldog ensures the owner of his full share of the products of his skill and labor.

ROCK GARDEN ON THE ESTATE OF GEORGE E. BARNARD, IPSWICH, MASS.

F. W. Dahl's Estate at Roxbury.

September 27 the committee again visited the interesting estate of Mr. F. W. Dahl on Columbus Avenue, Roxbury, to inspect his gardens of fruit and vegetables. These were found in the same creditable condition as on the former occasion and showed the same intelligent care and skilful cultivation. Most of the crop of fruit had been already gathered but the noticeable feature was the healthy and clean condition of the trees as well as of the vegetable products of the garden.

Mr. Dahl's estate of only about one acre including the house lot well illustrates the possibilities of a place of that extent in the way of producing an abundance of fruit and vegetables as also the more ornamental features of horticulture.

The following is a list of the prizes awarded for the year:

H. H. Hunnewell Triennial Premium.

For an estate of not less than three acres which shall be laid out with the most taste, planted most judiciously, and kept in the best order for three consecutive years:

First, George E. Barnard, Ipswich $160.00

Special Prize.

For an estate in Massachusetts of not more than three acres nor less than one acre that shows the best arrangement in planting and is kept in the best order:

Second, F. W. Dahl, Roxbury $25.00

Society's Prizes.

For a Garden of Summer or Fall-flowering plants, not commercial:

First, George E. Barnard, Ipswich Silver Medal

For a Garden or Collection of Hardy Roses, not commercial:

First, George E. Barnard, Ipswich Silver Medal

For a Rock Garden:	
First, George E. Barnard, Ipswich	Silver Medal
For a Water Garden:	
First, George E. Barnard, Ipswich	Silver Medal
For a Fruit Garden of large or small fruits:	
First, Walter G. Kendall, Atlantic	Silver Medal
Second, F. W. Dahl, Roxbury	Bronze Medal
For a Vegetable Garden, not commercial:	
First, George E. Barnard, Ipswich	Silver Medal
Second, F. W. Dahl, Roxbury	Bronze Medal

Special Awards.

John S. Critchley, Ipswich, in recognition of his work on the Barnard Estate, First Class Cultural Certificate.

Otto Strassenburg, Lexington, for superior cultivation of Summer and Fall-flowering plants, First Class Cultural Certificate and $10.00.

Mrs. Harriet R. Foote, Marblehead, for superior cultivation of Roses, First Class Cultural Certificate and $10.00.

Charles W. Parker, Marblehead, for tasteful planting of his estate "Redgate," First Class Certificate.

The Estates of Col. H. E. Converse and A. G. Weeks at Marion were reported favorably for the first and second awards respectively in the second year's competition for the H. H. Hunnewell Triennial Premium.

CHARLES W. PARKER
ARTHUR F. BARNEY
ARTHUR H. FEWKES
T. D. HATFIELD
JULIUS HEURLIN
WILLIAM NICHOLSON
WM. P. RICH
WM. J. STEWART
J. B. SHURTLEFF, JR.
WILFRID WHEELER

Committee on Gardens.

VIEW ON THE ESTATE OF GEORGE E. BARNARD, IPSWICH, MASS.

REPORT OF THE DELEGATE TO THE STATE BOARD OF AGRICULTURE FOR THE YEAR 1910.

Since 1905 the office work of the State Board of Agriculture has nearly doubled, while its outside activities have also increased in a large way. The additional work in the office consists mainly in answering increased inquiries concerning all phases of agriculture; the publication and distribution of useful bulletins and reports; furthering good legislation; and checking that which would in the best opinion of the Board be bad for the farmers of the state. The outside work consists in the holding of institutes and public meetings; in demonstrations along lines of interest and usefulness to the farmers of the state; and in visits by the secretary and other members of the Board to various farms where special lines of work are being conducted. All of which goes to show that there is a renewed interest in agriculture and that farmers and land owners all over this and other states are awakening to the possibilities in scientific agriculture.

The Board has held two public meetings the past year; the first at Amherst in June, and the second at Northampton in December. At both meetings the attendance was very satisfactory especially at Northampton where over 300 persons came to the sessions. Subjects of general interest were discussed, such as Orcharding, Draining, Poultry Keeping, Care and Management of Horses, Tobacco Growing, etc.

The regular annual meeting of the Board was held in January last as usual. Reports of committees, of the Secretary of the Board, State Forester, Cattle Bureau, Dairy Bureaus, State Ornithologist, and State Nursery Inspector were read, discussed, and approved. These reports will be found in full in the Report of the Board for 1910.

Legislation was recommended and adopted as follows:

Milk Standard.— Law relieving the milk producer from criminal liability when his milk is not up to standard, and giving him

twenty days in which to get it right. Under this law there have been very few prosecutions; warnings have been sufficient, and the farmers feel much more secure than under the old law. A Bill appointing an Inspector of Apiaries was passed. Diseases among bees have threatened to wipe out this growing industry in Massachusetts, and it has been considered necessary to take some step relative to stamping out the particular disease known as Foul Brood. While bee keeping for honey may not be as yet very important in Massachusetts, bees are a very important factor in horticulture. Mr. Gates of Amherst has been appointed Inspector.

Another Bill appropriating $500.00 to be expended by the Board to encourage orcharding in the state was passed through the efforts of the Board. This money has been expended by giving prizes as follow: For the best yield per acre of apple orchard; for the best yield per tree; for the best results from spraying; and for the best young apple orchard planted in 1908 or 1909.

Entries for all these prizes were very satisfactory, there being sixteen for the young orchards. These orchards were judged by your Delegate who is very glad to report to you that progress is being made in Massachusetts in planting new orchards, and that there seems to be an optimistic spirit toward apple production. Many of the orchards visited are being conducted along lines similar to those followed in the West.

The Board also recommended a Bill allowing for an open shooting season of one week for deer. This Bill was passed and over 2000 deer have been reported killed in the state. It is estimated that there are over 8000 deer in the state and they increase at the rate of 40% a year, so that the killing of 2000 does not take care of the increase.

The regular appropriations for agricultural societies were also made.

The publications of the Board for the past year are as follow:

Annual report for 1909; Crop reports for six months, containing the following articles: Corn selection for seed and show; Asparagus culture; Alfalfa in Massachusetts; Celery growing; Grape growing; Bulletins: No. 1. Poultry Raising; No. 2. Orcharding; No. 3. Grasses and Forage Crops; No. 4. Small Fruits and Berries; and Nature Leaflets: No. 43. The Leopard Moth;

No. 44. Root and Cleft Grafting; No. 45. Planting and Care of Trees; No. 46. Beautifying Home Grounds. The publication entitled Farm Lands of Massachusetts, authorized by the Legislature of 1908, came out this year, and contains descriptions, locations, and values of over 250 farms.

It will be necessary to ask for reprints of many of these publications as the supply is nearly exhausted.

On the whole the work of the Board for the year has been satisfactory, but that there is a larger field than ever open for work is also apparent, and the needs of tomorrow cannot be filled by the needs of today, so that unless the Board can keep up with the times, its usefulness will be questioned and its efficiency doubted.

Wilfrid Wheeler,
Delegate.

Concord, Massachusetts.
December 31, 1910.

REPORT OF THE SECRETARY AND LIBRARIAN FOR THE YEAR 1910.

The work of the Society during the year 1910 has been somewhat interrupted by reason of proposed alterations of the interior of the building in order to adapt the halls for more general public uses and thereby to increase the income from rentals.

After a careful study of the several plans presented it was at length decided by the Trustees to indefinitely postpone the proposed changes. The expense of the alterations was found to be so great that it was deemed inadvisable to proceed further in the matter. A new hard-wood floor was laid in the large exhibition hall during the summer which has improved the appearance of the hall and has already paid for its cost in additional rentals of the building.

For these reasons the publication of the usual Schedule of Prizes and Exhibitions for the year was suspended, notwithstanding which four important exhibitions have been given which are briefly mentioned herewith, and are more fully referred to in the several reports of the Chairmen of the various committees.

The first was the Midwinter Flower Show held February 25, 26, and 27 which took the place of the usual Spring Show.

The next was the Great Exhibition of Orchids and other Plants on May 26 to 30 in which was arranged what was probably the grandest display of orchids ever shown in this country.

The Peony Exhibition which followed on June 14 and 15 was held in connection with the annual meeting of the American Peony Society and proved as usual a most successful show.

A General Autumn Exhibition of plants, flowers, fruits, and vegetables was held September 23 to 25.

In addition to these exhibitions the New England Dahlia Society held its third annual Dahlia Show in the building on September 16 to 18.

Early in January an exhibition of 700 photographs of Chinese plants, animals, and scenery was held in the lecture hall. These

photographs were the property of the Arnold Arboretum and were made by Mr. E. H. Wilson, the head of the Arboretum Botanical Expedition to central and western China during the years 1907–08. The photographs were of unusual excellence and attracted much attention. The Society's Gold Medal was awarded Mr. Wilson in recognition of the value of his work.

Two noteworthy additions to the list of special prize funds of the Society have been made during the year.

The first was the gift of $5000.00 by George Robert White of Boston for the establishment of the George Robert White Medal of Honor Fund, the income of which is to be expended annually for a substantial gold medal to be awarded to the man or woman, commercial firm, or institution that has done the most during the year or in recent years for the advancement of horticulture in its broadest sense.

The other addition was the transfer to the Society by Mr. Lewis H. Farlow of the fund bequeathed to the Newton Horticultural Society by the late John S. Farlow amounting to $2882.87. Inasmuch as the Newton Society is not now in operation Mr. Farlow has turned the fund over to the Massachusetts Society with the condition that the income is to be expended in prizes and gratuities for pear and foreign grape culture.

The publications of the year and the dates of issue are as follow:

May 18. Transactions, 1909, Part 2, pp. 153–303 and plates 1 and 2.

August 18. Transactions, 1910, Part 1, pp. 1–97.

The Library.

The need of a new catalogue of the library to which attention has been called in the recent reports of the Librarian has at last assumed material form and work upon it has been in progress during the greater part of the present year. The plan adopted is that of a classified list based upon the present arrangement of the library followed by a very full alphabetical index of authors and subjects. In this index all the publications of an author will be given under the author's name, arranged chronologically in abbreviated form,

and with number of the page in the classified list where the full title of the book can be found if desired.

It is expected that the completed work will be of value as a bibliographical reference to horticultural literature as well as serving the purpose of a catalogue of the library.

There have been numerous gifts to the library during the year of books and pamphlets relating to horticulture. In January a collection of books was presented from the estate of the late Henry A. Wilder, a member of the Society since 1866, among which were several volumes which proved desirable additions.

In June there was received from the Library of the United States Department of Agriculture several hundred horticultural trade catalogues both American and foreign. Most of them proved to be additions to those already on hand.

In August the Essex Institute of Salem, through its Secretary, George Francis Dow, presented to the library several thousand volumes, pamphlets, and periodicals, among which were found many items of great interest relating to American horticulture and agriculture, dating from 1820 to 1860.

Other acceptable gifts were made during the year by Messrs. Oakes Ames, Wm. N. Craig, N. T. Kidder, E. E. Norton, C. S. Sargent, and E. F. Sweet, whose kind interest in the library is much appreciated.

WILLIAM P. RICH,
Secretary and Librarian.

REPORT OF THE TREASURER FOR THE YEAR 1910.

MASSACHUSETTS HORTICULTURAL SOCIETY *in account current with* WALTER HUNNEWELL, *Treasurer, December 31, 1910.*

DR.

Paid for Library from Appropriation	$400 00		
" " " " J. D. W. French Fund	203 98		
" " " " J. S. Farlow Fund	104 31	$708	29
" " Heating	710 99		
" " Lighting	1,018 40		
" " Labor	2,144 11		
" " Stationery and Printing	920 17		
" " Postage	190 96		
" " Insurance	216 54		
" " Incidentals	998 35		
" " Repairs	1,194 31		
" " Committee on Lectures and Publications	255 00		
" " Salaries of Officers	3,228 63		
" " " Committee on Plants and Flowers	247 50		
" " " " " Fruits	116 00		
" " " " " Vegetables	112 00		
" " " " " Prizes and Exhibitions	150 00		
" " Expenses Committee on Gardens	70 80		
" " Legal Expenses	621 25		
" " Medals	1,215 09	13,410	10
" " Prizes for Plants and Flowers	3,880 00		
" " Prizes for Fruits	330 00		
" " Prizes for Vegetables	149 00		
" " Prizes for Gardens and Greenhouses	20 00		
" " H. H. Hunnewell Triennial Premium	160 00		
" " Special Prize Estate 1 to 3 acres	25 00	4,564	00
" " $4000 Telephone Bonds bought		4,110	00
Balance December 31, 1910, Treasurer and Bursar		18,261	66
		$41,054	05

Cr.

Balance December 31, 1909			$11,893 97
Received Rents		$3,201 15	
" Exhibitions	2,984 25		
" less expenses	1,960 51	1,023 74	
" Membership Fees		1,076 00	
" Mount Auburn		2,686 28	
" Special Prize		25 00	
" State Bounty		600 00	
" Sundry Donations		7,936 92	
" Hayes-Loring Trustees		1,180 10	17,729 19
" Interest on securities from the following funds:			
S. Appleton		50 00	
J. A. Lowell		50 00	
T. Lyman		550 00	
J. Bradlee		50 00	
B. V. French		25 00	
H. H. Hunnewell		200 00	
W. J. Walker		117 72	
L. Whitcomb		25 00	
B. B. Davis		25 00	
M. P. Wilder		50 00	
J. L. Russell		50 00	
F. B. Hayes		500 00	
H. A. Gane		50 00	
J. S. Farlow		100 00	
J. D. W. French		200 00	
B. H. Pierce		32 00	
J. C. Chaffin		40 00	
B. V. French, No. 2		120 00	
G. R. White		100 00	
J. S. Farlow Newton		50 00	
J. A. French		200 00	2,584 72
" Interest and dividends on securities other than those for the above funds			8,846 17
			41,054 05

Assets.

Real Estate	$518,564 63	
Furniture and Exhibition Ware	10,796 96	
Library	45,110 47	
Plates and History	235 50	
$2,000 Kansas City, Clinton, and Springfield Bonds	1,980 00	

10,000 Lake Shore and Mich. So. Bonds	$10,415 25	
21,000 City of Newton Bonds	24,228 75	
50,000 Atch. Topeka and S. F. Bonds	44,693 25	
50,000 Chicago Burl. and Quincy Bonds	50,012 50	
10,000 Chicago and West Mich. Bonds	9,987 50	
25,000 K. C. F. S. and Memphis Bonds	27,523 75	
50,000 C. B. and Q. Illinois Bonds	51,625 00	
8,000 Boston and Maine Bonds	8,710 00	
5,000 West End Street R'y Bonds	5,162 50	
5,000 General Electric Bonds	5,164 20	
$4,000 Amer. Tel. and Tel. Bonds	4,110 00	
150 shares General Electric Stock	7,745 70	
Hayes and Loring, Trustees	2,308 66	
Cash in hands of Treasurer	17,579 74	
" " " " Bursar	681 92	
		$846,636 28

Liabilities.

Funds invested in Bonds and Stocks:			
S. Appleton	Fund	$1,000 00	
J. A. Lowell	"	1,000 00	
T. Lyman	"	11,000 00	
J. Bradlee	"	1,000 00	
B. V. French	"	500 00	
H. H. Hunnewell	"	4,000 00	
W. J. Walker	"	2,354 43	
L. Whitcomb	"	500 00	
B. B. Davis	"	500 00	
M. P. Wilder	"	1,000 00	
J. L. Russell	"	1,000 00	
F. B. Hayes	"	10,000 00	
H. A. Gane	"	1,149 00	
J. S. Farlow	"	2,514 65	
J. D. W. French	"	5,000 33	
B. H. Pierce	"	800 00	
J. C. Chaffin	"	1,201 89	
B. V French, No. 2	"	3,000 00	
J. A. French	"	5,000 00	
G. R. White	"	5,000 00	
J. S. Farlow, Newton	"	2,900 42	
Sundry Donations	"	164 50	
C. L. W. French	"	10 80	60,596 02
Surplus			786,040 26
			$846,636 28

Walter Hunnewell,
Treasurer.

Membership of Massachusetts Horticultural Society.

December 31, 1910.

Life Members, December 31, 1909		679	
Added in 1910		22	
Changed from Annual		2	
		703	
Deceased		18	685
Annual Members, December 31, 1909		154	
Added in 1910		10	
		164	
Deceased	3		
Resigned	3		
Changed to Life	2		
Dropped for non-payment of assessment for 2 years	1	9	155
Membership, December 31, 1910			840

Income from Membership.

22 New Life members at $30	$660 00
10 New Annual Members at $10	100 00
1 Changed to Life	18 00
1 " " " (Dues remitted)	
Assessments for 1910	298 00
	$1,076 00

Walter Hunnewell,
Treasurer.

AUDITOR'S CERTIFICATE.

28 State Street, Boston,
January 31st, 1911.

To the Finance Committee of the
Massachusetts Horticultural Society.

Gentlemen:

In compliance with your request I have made a thorough audit of the books and general accounting affairs of the Massachusetts Horticultural Society for the year which ended with the thirty-first day of December, 1910, and herewith submit to you my report of the same.

Report.

I have proved the correctness of the ledger, journal, and cash books and the small books tributary to the cash books, and saw that all balances were properly carried forward. I examined all vouchers and checks representing the disbursements during the year and found the amount of cash required by the cash book upon the first day of January, 1911, to have been on hand and also examined the securities of the Society, finding them in all details in accordance with the requirements of the records. I traced all postings from the journal and cash books into the ledger and certify that the balance sheet taken from it as of the 31st of December, 1910, is a correct abstract and that the Treasurer's statement of the assets and liabilities of the Society upon said date is true to the best of my knowledge and belief.

In short, I satisfied myself that the work in connection with the accounting affairs of the Society was being intelligently performed and that the books and papers of the Society were in their usual good condition.

Yours very respectfully,

Andrew Stewart,
Certified Public Accountant.

THE ANNUAL MEETING, NOVEMBER 19, 1910.

ANNUAL MEETING FOR THE YEAR 1910.

The Annual Meeting of the Society for the year 1910 was held at Horticultural Hall, Boston, on Saturday, November 19, at twelve o'clock, with Vice-President Hunnewell in the chair.

In calling the meeting to order Mr. Hunnewell stated that it was held in accordance with the By-laws for the election of officers for the ensuing year and for the transaction of such other business as might be legally presented; and that a printed notice had been mailed to the address of every member of the Society as it appeared upon the records of the Secretary.

The record of the Annual Meeting of November 13, 1909, was read by the Secretary and duly approved.

The Vice-President also announced that the Board of Trustees had made an appropriation of $5500.00 for Prizes and Gratuities for the year 1911. He then appointed Messrs. Edward B. Wilder, J. Allen Crosby, and E. A. Snow, a committee to receive, assort, and count the ballots, and to report the number, and declared the polls open until four o'clock.

At four o'clock the polls were closed and the ballot committee through its chairman, Mr. Wilder, reported as follows:

Whole number of ballots cast 40. For President, Charles W. Parker, 40; for Vice-President, John K. M. L. Farquhar, 34; for Trustees, Ernest B. Dane, 39, John A. Pettigrew, 39, Stephen M. Weld, 39, Wilfrid Wheeler, 39; for Nominating Committee, Francis H. Appleton, 39, Frederick W. Damon, 39, Harry E. Fiske, 39, Charles W. Hoitt, 39, Josiah B. Shurtleff, Jr., 39.

Chairman Wilder declared the list as follows to be the duly elected officers of the Society for the year 1911:

President	Charles W. Parker
Vice-President	John K. M. L. Farquhar
(for two years),	
Trustees	Ernest B. Dane
(for three years),	John A. Pettigrew
	Stephen M. Weld
	Wilfrid Wheeler

Nominating Committee, Francis H. Appleton
Frederick W. Damon
Harry E. Fiske
Charles W. Hoitt
Josiah B. Shurtleff, Jr.

The meeting was then dissolved.

William P. Rich,
Secretary.

NECROLOGY, 1910.

NECROLOGY, 1910.

Professor Peter MacOwan, a corresponding member of the Society since 1889, died at his residence in Uitenhage, South Africa, December 1, 1909. He was born in England in 1830 and was until recent years the government botanist of the Cape Colony.

Henry Sturgis Grew, a member of the Society since 1896, died at his home in Boston, February 7, 1910. Mr. Grew was born in Boston in 1834. Although for many years actively engaged in business pursuits he was also actively interested in many of Boston's charitable and philanthropic institutions to which he gave generous support and encouragement.

Samuel Dennis Warren died at his country home in Dedham, Massachusetts, February 20, 1910, at the age of 58 years. He was admitted a member of the Society in 1899.

James John Howard Gregory, for many years a widely-known seedsman, died at his home in Marblehead, Massachusetts, February 20, 1910, in his 83d year. He was born in that town, November 7, 1827, and lived there throughout his life. In 1859 he became a member of the Society and was one of the very few remaining members of that period of its history.

In past years he was a frequent participant in the meetings held for the discussion of horticultural topics and the following more formal papers prepared by him are recorded in the Transactions of the Society: The Origin of the Hubbard Squash, 1857. Nitrogen in Agriculture, 1885. The Onion; Its Varieties and Cultivation, 1889. Growing Seeds for the Market, 1894.

He was also the author of numerous small volumes on the general subject of vegetable culture which have had an extended circulation.

Mr. Gregory was very successful in his business and was much interested in many philanthropic movements for the uplifting of his fellow men. He was also prominent in the public affairs of his native town and state.

Marshall W. Chadbourne of Watertown, Massachusetts, died at his home there February 20, 1910, at the age of 76. Mr. Chadbourne had been a member of the Society since 1865, was greatly interested in practical horticulture, and was a frequent contributor of fruits and flowers to the exhibitions of the Society.

Edward Hatch, a member of the Society since 1895, died March 11, 1910. Mr. Hatch was a well-known auctioneer of Boston and a devoted and liberal friend to the gardener and florist fraternity. His interest in horticulture dated back to the years when he held auction sales of plants in the old Horticultural Hall on Tremont Street. His genial nature and ready wit won him many friends in the trade, and his death is a loss to the horticultural interests of the city.

George Cabot Lee, a member of the banking firm of Lee, Higginson & Co., of Boston, died at his residence in Boston, March 21, 1910, in his 80th year. He was admitted to membership in the Society in 1899.

Charles Herbert Watson, a member of the banking firm of Estabrook & Co. of Boston, died at his home in Brookline, Massachusetts, April 20, 1910, at the age of 54. Mr. Watson became a member of the Society in 1905.

Stacy Hall, one of the oldest and best known marketmen in Faneuil Hall Market, Boston, died at his home in that city, May 26, 1910, at the advanced age of 91 years. Mr. Hall had been identified with the Society since 1887.

Thomas W. Dee, one of the older Boston florists, and a member of the Society since 1884, died at his home in Cambridge, Massachusetts, July 3, 1910, at the age of 73. He was a veteran of the War of the Rebellion.

George Cleveland Wright, a well-known Boston merchant, died at his home in West Acton, Massachusetts, July 10, 1910, in his 88th year. He had been a member of the Society since 1867.

GEORGE DEXTER, a member of the Society since 1899, died at his summer home at Beverly, Massachusetts, July 2, 1910, in his 76th year.

GUSTAVUS CROCKER HOLT, formerly of Belmont, Massachusetts, and a member of the Society since 1900, died at his summer residence in Hingham, July 29, 1910, at the age of 59 years. He was for many years a member of the insurance firm of John C. Paige & Co.

THE HONORABLE MRS. GEORGE DUNCAN of Boston died at her summer home in Nahant, Massachusetts, August 17, 1910, in the 60th year of her age. She was elected a member of the Society in 1905 and was much interested in horticultural matters.

GEORGE MIXTER of Boston, who died at his summer home in Hardwick, Massachusetts, August 26, 1910, had been identified with the Society since 1894. He was 67 years old. Mr. Mixter owned and managed a large farm in Hardwick, his special interest being dairying, and his farm was noted for the high-grade herds of cattle maintained there.

WILLIAM BENJAMIN WHITTIER, proprietor of the Framingham Nurseries, Framingham, Massachusetts, died at his home there August 27, 1910, at the age of 51. He was elected a member of the Society in 1900.

CHARLES ANTHONY GOESSMAN, PH. D., LL.D., a corresponding member of the Society since 1889, died at Amherst, Massachusetts, September 1, 1910, at the age of 83. Dr. Goessman was connected with the Massachusetts Agricultural College and the Agricultural Experiment Station at Amherst for nearly forty years. His special work was in agricultural chemistry.

MAX LEICHTLIN of Baden-Baden, Germany, a corresponding member of the Society since 1882, died September 3, 1910, at the age of 80. He was a noted botanist and horticulturist and his name is preserved for the future in connection with numerous plants introduced by him and named in his honor.

Professor W. M. Munson, formerly of Orono, Maine, and a member of the Society since 1894, died at Morgantown, West Virginia, September 9, 1910.

George Springall of Malden, Massachusetts, a member of the Society since 1864, died at his home in that city, September 13, 1910, in his 89th year.

Doctor Melchior Treub, a corresponding member of the Society since 1889, and Director of the Botanic Gardens of Buitenzorg, Java, for 29 years, died at St. Raphael, France, October 3, 1910, at the age of 59. An accomplished botanist he devoted his life also to the development of the agricultural resources of Java.

Professor David Pearce Penhallow, a corresponding member of the Society since 1887, died October 20, 1910. Professor Penhallow was born at Kittery, Maine, in 1854. His principal scientific work was done as Professor of Botany at McGill University, Montreal, Canada, a position he occupied from the year 1883 until his death.

John Appleton Burnham, a prominent Boston business man, and a member of the Society since 1899, died at his summer home in Wenham, Massachusetts, November 2, 1910, in his 71st year.

Prosper J. A. Berckmans of Augusta, Georgia, widely known in the horticultural and pomological world, died November 8, 1910, in his 81st year. Mr. Berckmans was born in Belgium in 1830 and came to the United States in 1850. A few years later he located in Augusta, Georgia, where he established what developed into the largest nursery business in the southern states.

He was one of the founders of the Georgia State Horticultural Society in 1876 and its president from that date to the year of his death. He was elected a corresponding member of the Society in 1869.

George W. Tufts of Rockport, Massachusetts, died in that town November 28, 1910. He was elected to membership in the Society in 1907.

George Doane Low, a member of the Society since 1902, died in Boston, December 17, 1910, at the age of 81.

OFFICERS, COMMITTEES, AND MEMBERS, 1910.

Massachusetts Horticultural Society.

OFFICERS AND STANDING COMMITTEES FOR 1910.

President.

STEPHEN M. WELD, of Wareham.

Vice-Presidents.

WALTER HUNNEWELL, of Boston.
CHARLES W. PARKER, of Boston.

Treasurer.

WALTER HUNNEWELL, of Boston.

Secretary.

WILLIAM P. RICH, of Chelsea.*

Trustees.

WALTER C. BAYLIES, of Taunton.
WILLIAM H. BOWKER, of Boston.
WILLIAM N. CRAIG, of North Easton.
GEORGE B. DORR, of Boston.
ARTHUR F. ESTABROOK, of Boston.
JOHN K. M. L. FARQUHAR, of Boston.
PETER FISHER, of Ellis.
NATHANIEL T. KIDDER, of Milton.
JOHN A. PETTIGREW, of Boston.
THOMAS ROLAND, of Nahant.
CHARLES S. SARGENT, of Brookline.
WILLIAM WHITMAN, of Brookline.

Nominating Committee.

CHARLES H. BRECK, of Boston.
DUNCAN FINLAYSON, of Jamaica Plain.
HARRY F. HALL, of Waban.
CHARLES S. MINOT, of Milton.
HERBERT W. RAWSON, of Arlington.

*Communications to the Secretary, on the business of the Society, should be addressed to him at Horticultural Hall, Boston.

COMMITTEES FOR 1910.

Finance Committee.

WALTER HUNNEWELL, *Chairman.*
ARTHUR F. ESTABROOK, STEPHEN M. WELD.

Committee on Prizes and Exhibitions.

J. K. M. L. FARQUHAR, *Chairman.*
ROBERT CAMERON, WILLIAM N. CRAIG, M. A. PATTEN,
JOHN A. PETTIGREW, CHARLES S. SARGENT.

Committee on Plants and Flowers.

T. D. HATFIELD, *Chairman.*
DUNCAN FINLAYSON, PETER FISHER, SAMUEL J. GODDARD,
THOMAS ROLAND, WILLIAM THATCHER.

Committee on Fruits.

EDWARD B. WILDER, *Chairman.*
J. WILLARD HILL, JAMES WHEELER.

Committee on Vegetables.

JOSIAH B. SHURTLEFF, JR., *Chairman.*
VINCENT BUITTA, GEORGE D. MOORE.

Committee on Gardens.

CHARLES W. PARKER, *Chairman.*
ARTHUR F. BARNEY, ARTHUR H. FEWKES, T. D. HATFIELD,
JULIUS HEURLIN, WILLIAM NICHOLSON, WILLIAM P. RICH,
JOSIAH B. SHURTLEFF, JR., WILLIAM J. STEWART,
WILFRID WHEELER.

Library Committee.

CHARLES S. SARGENT, *Chairman.*
ERNEST B. DANE, GEORGE B. DORR, CHARLES S. MINOT,

Committee on Lectures and Publications.

WILLIAM J. STEWART, *Chairman.*
HARRY F. HALL, WILLIAM P. RICH, EDWARD B. WILDER.

Committee on Children's Gardens.

MRS. ROBERT G. SHAW, *Chairman.*
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Revised to December 31, 1910.

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Stone, George F., Chestnut Hill.
Storrow, James J., Boston.
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Sturgis, Richard Clipston, Boston.
Sullivan, Martin, Brookline.
Swain, Charles E., Roxbury.
Sweet, Everell F., Malden.
Sylvester, Edmund Q., Hanover.

Taylor, Charles H., Boston.
Tenney, C. H., Methuen.
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Thayer, Bayard, South Lancaster.
Thayer, Mrs. Bayard, South Lancaster.
Thayer, Mrs. Eugene V. R., South Lancaster.
Thayer, Henry J., Boston.
Thayer, John E., South Lancaster.
Thayer, Mrs. John E., South Lancaster.
Thayer, Nathaniel, Lancaster.
Thayer, Mrs. Nathaniel, Lancaster.
Thiemann, Hermann, Owosso, Mich.
Thomas, W. B., Manchester.
Thurlow, George C., West Newbury.
Tilton, Stephen W., Brookline.
Tolman, Miss Harriet S., Boston.
Toppan, Roland W., Malden.
Torrey, Elbridge, Dorchester.
Torrey, Everett, Charlestown.
Tower, Miss Ellen May, Lexington.
Tower, Mrs. Helen M., Cambridge.
Travis, Charles B., Brighton.
Trepess, Samuel J., Glencove, L. I., N. Y.
Tucker, Lawrence, Boston.

Turner, Chester Bidwell, Roxbury.

Underwood, Henry O. Belmont.
Underwood, Loring, Belmont.

Vander-Woerd, Charles, Waltham.
Vaughan, William Warren, Boston.
Vinal, Miss Mary L., Somerville.
Vining, R. William E., Hingham.

Wainwright, Arthur, Milton.
Wakefield, E. H., Cambridge.
Walcott, Henry P., M. D., Cambridge.
Waldo, C. Sidney, Jamaica Plain.
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Waltham, George C., Dorchester.
Walton, Arthur G., Wakefield.
Warburton, Chatterton, Fall River.
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Watson, Thomas A., East Braintree.
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Webster, Frank G., Boston.
Webster, George H., Haverhill.
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Wheeler, James, Brookline.
Wheeler, Wilfrid, Concord.
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White, George R., Boston.
White, Harry K., Milton.
White, Joseph H., Brookline.
Whitman, William, Brookline.
Whitney, Arthur E., Winchester.
Whitney, Ellerton P., Milton.
Whitney, Henry M., Cohasset.
Whittier, George E., Groton.
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Williams, Henry Bigelow, Boston.
Williams, John Davis, Boston.
Williams, Mrs. J. Bertram, Cambridge.
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Williams, Philander, Taunton.
Winsor, William Power, Boston.
Winsor, Robert, Weston.
Winter, Herman L., South Medford.
Wood, William K., Franklin.
Woodberry, Miss E. Gertrude, North Cambridge.
Woodbury, John, Canton.
Woodward, Mrs. Samuel Bayard, Worcester.
Wright, John G., Brookline.
Wyman, Oliver B., Shrewsbury.
Wyman, Windsor H., North Abington.

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Anderson, George M., Milton.

Balme, Juan, Jr., Querétaro, Mexico.
Bangs, Francis R., Boston.
Barker, John G., South Bend, Ind.
Barr, John, South Natick.
Bennett, John W., Springfield, Vt.
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Bigelow, Mrs. Nancy J., Southborough.
Bird, John L., Dorchester.
Blackmur, Paul R., Quincy.
Blanchard, Herbert W., Concord.
Bolton, Sabin, Hingham.
Borst, Theodore F., South Framingham.
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Breck, Charles H., Newton.
Breed, Edward W., Clinton.
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Butler, E. K., Jamaica Plain.

Camus, Emil, Boston.
Chandler, Alfred D., Brookline.
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Clark, Joseph, Manchester.
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Davis, Frederick S., West Roxbury.
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Gordon, Samuel C., Ipswich.
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Grey, Thomas J., Chelsea.

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Handley, A. H., Newton.
Harrison, C. S., York, Nebraska.
Hatfield, T. D., Wellesley.
Hayward, Mrs. W. E., Ipswich.
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Hill, Arthur Dehon, Boston.
Hill, J. Willard, Belmont.
Hollingsworth, Miss Rose, Boston.
Hollis, George, South Weymouth.
Howden, Thomas, Whitinsville.
Howe, Miss Louise, Brookline.
Hubbard, Allen, Newton Centre.
Hubbard, F. Tracy, North Easton.

Illenberger, Henry W., Lake Geneva, Wisconsin.

James, Robert Kent, Newton Centre.
Jameson, G. W., East Lexington.
Johnston, Robert, Lexington.

Keith, Mrs. Mary R., Washington, D. C.
Kelsey, Harlan P., Salem.
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Knott, N. W. T., Waban.

Lancaster, Mrs. E. M., Roxbury.
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Scudder, Samuel H., Cambridge.
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Sears, Prof. F. C., Amherst.
Seaver, Robert, Jamaica Plain.
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Smith, D. Roy, Boston.
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Thorpe, Joseph, Taunton.
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Warren, Samuel H., Weston.
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